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# SCHOOL ATTENDANCE AS A FACTOR IN SCHOOL PROGRESS

A STUDY OF THE RELATIONS EXISTING BETWEEN THE SCHOOL ATTENDANCE OF PUPILS AND THEIR SCHOLASTIC ACHIEVEMENTS AND PROGRESS AND THEIR HOME ENVIRONMENT TOGETHER WITH OTHER CAUSAL FACTORS

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C. W. Z.



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# SCHOOL ATTENDANCE AS A FACTOR IN SCHOOL PROGRESS

## CHAPTER I THE PROBLEM

This study deals with a phase of school attendance on which very little scientific data exist. This phase is the relation between the school attendance of a child on the one hand, and the quality of work accomplished by him and his rate of progress through the school system on the other. The natural conclusion and the logical reasoning of most of those who have discussed this subject have been that there is necessarily a quite conspicuous, positive relation between school attendance and these two characteristics: that poor attendance on the part of pupils of course results in poor marks; that good attendance coincides with good marks. Consequently, a multitude of articles may be found on this subject, written from the general observations and practical everyday experiences of school men and school women throughout the country. The purpose of this study is to analyze carefully, however, to what extent accepting these conclusions is justified after an intensive scientific study of the question.

To solve this problem, three distinct means of approach have been employed. The first of these is a study of the literature and researches dealing with its solution.

In the second place, an effort has been made to ascertain what relations exist between the attendance of pupils in a particular grade of a particular city school system and their school marks, and between their attendance and their rate of progress through the school system. Are there certain subjects with which attendance has a conspicuous relation; are there others in which the relation is almost zero? Is there a noticeable relation between regularity of attendance and the school marks obtained? Do the attendance records of pupils year after year bear any relation to the continuance of pupils in school and hence to their school

## 2      *School Attendance as a Factor in School Progress*

progress? What relation exists between the attendance of pupils and the distance at which they live from school?

A third means of approach has been along lines similar to that to which reference has already been made in order to discover whether school attendance is as important an influence as, or a more important influence than, other factors on school marks and school progress. What are the relations between school attendance and such factors as general ability, physical environment of homes, economic status of parents, nationality, and sex?

These are the questions which will be answered in the following pages. The evidence and conclusions will be presented as follows: Chapter II will contain a brief summary of the literature of the subject. Chapter III will deal with the material and the method of this study as applied to the interpretation of new evidence. Chapters IV and V contain the answers to these questions as revealed by a study of 307 pupils in the 7B grade of a junior high school. Chapter VI will deal with an extension of this study. It will consider the evidence in the attendance-school-marks and school-progress relations as exhibited from a random sampling of pupils in eight grades of the same school system in which the first data were obtained.

Chapter VII will contain the summary and conclusions of the entire study. It will also include such recommendations as seem desirable from a consideration of this summary.

## CHAPTER II

### THE LITERATURE OF SCHOOL ATTENDANCE AS RELATED TO ACHIEVEMENT AND PROGRESS

The literature dealing with the relation between school attendance and school marks and school progress is not large. There are the opinions and observations of administrators, it is true, which are well worth considering. Some of these are quite worthwhile, when actual statistics are reported to substantiate the conclusions. Of intensive scientific studies concerning this question there are very few.

#### OPINIONS AND OBSERVATIONS OF EDUCATORS ON THIS SUBJECT

One of the most valuable opinions concerning the importance of school attendance is by J. W. Davis,<sup>1</sup> relating to conditions in New York City. Although he does not place in evidence statistical data or statistical computations to any extent, nevertheless, opinions and suggestions coming from a man of his wide experience and keen observation are worth careful consideration. Some of his most significant statements follow:

The education of a child extends over many years. If it could be confined to a few, compulsory laws might be unnecessary. It is the length of the educational process which obscures the ill effects of irregular attendance. Not strangely, therefore, other demands may appear more peremptory than school attendance. The parent, and much more so the child, find it difficult to realize the serious results that come from interrupting attendance.

Backed by the sanctions of law, customs, current ideals, and opinions, he keeps vivid, by the mere fact of his presence and his demand for an explanation, the importance of the habit of regularity, so that with the passage of time it becomes more deeply imbedded in each succeeding generation. Truancy—the habit of non-attendance—begins almost invariably with small irregularities.

Retardation is a common subject for discussion in the teaching world. That world would probably be surprised to learn that irregular attendance is a substantially contributing factor to retardation. The intimate and

<sup>1</sup> Davis, J. W. and Others. *Report of the Bureau of Attendance for the Period Between July 31, 1915 to July 31, 1918*. Department of Education, School District of City of New York. Bureau of Attendance, 1919.

inseparable relation of regular attendance to school work has never been overlooked by principals or teachers, past and present. In days gone by, the irreclaimable truant who interfered with the attainment of results could be quietly dropped.

Bagley, Cubberley, Strayer, Engelhardt, and others agree with the opinions of Davis for the most part. For example, Bagley<sup>2</sup> says

...probably all authorities would agree that a school showing an average attendance lower than 90 per cent of its enrollment would be greatly handicapped in doing effective work, and furthermore that such a condition should be remedied.... All authorities would also probably agree that a school showing an average daily attendance of 98 per cent of its pupils could do very effective work, other things equal, and furthermore that attempts to secure a higher per cent would involve a danger that must never be overlooked, namely, that some pupils would be forced to attend school when such attendance would be inimical to their health.

It cannot be doubted that absence from class exercises theoretically prevents a pupil from reaching the standard gained by his fellows who have been regular in attendance. Indeed, if an habitual absentee is just as well prepared for the work of the following grade as is a pupil who has been regular in attendance, the fact is an unfortunate commentary upon the character of the instruction and training afforded by the class work. Nevertheless, it is true that the delinquent pupil may sometimes be just as capable of fulfilling the conditions of the higher grade as is the pupil who has been perfect in attendance.

Cubberley is quite convinced that:

The increased regularity of attendance of children enrolled is of itself an important item, as studies have shown a close correlation between retardation and dropping from school on the one hand, and irregular attendance on the other.

Because irregular attendance is such an important cause of retardation and ultimate elimination from school, because the irregular pupil becomes such a drag on the class on account of what he has missed, and because truancy and tardiness are bad habits and tend to undermine the discipline and morals of a school, it is important that the principal give careful attention to the matter of attendance.<sup>3</sup>

Poverty of parents, sickness, and a desire to put children to work are common causes of absence from school; these are not the serious causes.... More trouble is usually experienced from the children of native-born families than from the children of the foreign-born.... While in some cases the prime cause of trouble lies in the home, the great source of irregular attendance lies in the school itself.... To the truant the school work

<sup>2</sup> Bagley, William Chandler. *Class Room Management*, pp. 72-79. The Macmillan Company, New York, 1908.

<sup>3</sup> Cubberley, Ellwood P. *Public School Administration*, p. 361. Houghton Mifflin Company, 1916.

lacks interest and vitality, the companionship found in the school and on the playground does not appeal, and often the upper grade work at least is not well adapted to his needs.

It is perhaps not too much to say that the holding and drawing power of a school is one of the measurable standards by which its efficiency may be judged. Many things, though, contribute to the creation of a strong holding and drawing power. Some of these are external to the particular school itself, such as the character of the community, its attitude towards education, the nature of the school census, the compulsory attendance laws, and the character of the compulsory attendance service. Others are characteristic of the school system as a whole, such as the organization of the instruction, the types of school work offered, the emphasis placed on different aspects of the instruction, and the types of teachers employed. Still others lie wholly within the school itself, such as attention given to the problem, motivation of the school work and the development of a school spirit, and for these the principal must be held responsible.<sup>4</sup>

Equally strong are the convictions of Strayer and Engelhardt on this question :

It is very conceivable that differences which may exist in the achievements of children may be attributed in part to the amount of instruction the children have expressed in terms of the number of days school has been attended. The child who for any reason is absent from school, 10, 20, 30 or more days of a school year of 200 days, gives his classmates a handicap which he can overcome only with great difficulty. Upon the classroom teacher devolves the duty of sympathetic and constant cooperation with the attendance officers and attendance department, to the end that absence from school will be reduced to a minimum. The wise teacher will develop, on the part of his pupils, an *esprit de corps* which will constantly contend for a perfect attendance record.<sup>5</sup>

From the *Encyclopedia of Education* we are told that :

Irregular attendance interferes greatly with the efficiency and economy of school effort.<sup>6</sup>

As a result of one of his studies Briggs<sup>7</sup> tells us regarding the work of secondary schools that "several schools report the number of pupils who were present for different portions of a semester" but no one of them correlates the data with the facts concerning success in school work, and not one of them presents any program for improving the attendance.

<sup>4</sup> Cubberley, Ellwood P. *The Principal and His School*, p. 247. Houghton Mifflin Company, 1923.

<sup>5</sup> Strayer, George Drayton and Engelhardt, N. L. *The Classroom Teacher*, pp. 159-160. American Book Company, New York, 1920.

<sup>6</sup> Monroe, Paul. *Cyclopedia of Education*, Vol. 1, p. 281. The Macmillan Company, 1911.

<sup>7</sup> Briggs, T. H. *United States Bureau of Education, Bulletin No. 47*, 1918.

E. C. Brooks urges very strongly that the vital problem in school attendance is not the length of a term or the age of entrance, but the number of daily subjects taken and the opportunity afforded for individual progress in these subjects. He claims that the child who enters elementary school at the age of seven years will reach the high school a year before the five- or six-year-old entrant, the six-year-old being ahead of the five-year-old child.<sup>8</sup>

When writing on truancy or chronic absence from school, most authors suggest to us strongly that these factors are symptoms of other elements which are more important than absence in their effects upon the scholastic progress of the child.

J. S. Heath<sup>9</sup> tells us that there is a close relation between school progress and absence from school on the part of truants. Only 6 per cent of the cases studied by him were normal in their progress. He adds that 95 per cent of them were boys, and that 68 per cent were of normal intelligence.

D. P. MacMillan<sup>10</sup> tells us that 75 to 80 per cent of truants come from an inferior social environment and that they are handicapped by a physical and mental inferiority.

Luther Gulick<sup>11</sup> and S. D. Brooks<sup>12</sup> both place irregular school attendance and truancy as causes of pupils leaving school.

#### ATTENDANCE IN RURAL SCHOOLS

A considerable amount of study and thought has been given to the rural phase of the attendance problem. Miss Ruth McIntyre<sup>13</sup> states that the agricultural employment of children causes a great amount of non-attendance, which accounts for much of the illiteracy and retardation among our population. Miss Gertrude Folks<sup>14</sup> is convinced that farm labor, distance from

<sup>8</sup> Brooks, E. C. "The Legal Age of Entrance." *Elementary School Teacher*, Vol. 14, pp. 22-24.

<sup>9</sup> Heath, J. S. "The Truant Problem and the Parental School." *U. S. Bureau of Education, Bulletin* 1915, pp. 1-35.

<sup>10</sup> MacMillan, D. P. "Why We Have Truants and Delinquents." *The Child in the City*, pp. 172-178.

<sup>11</sup> Gulick, Luther, "Why 259,000 Children Quit School." *World's Work*, Vol. 20, 13,285-9.

<sup>12</sup> Brooks, S. D. "Causes of Withdrawal from School." *Educational Review*, Vol. 26, pp. 362-93.

<sup>13</sup> McIntyre, Ruth. "Effect of Agricultural Employment upon School Attendance." *Elementary School Journal*, Vol. 18, pp. 533-43.

<sup>14</sup> Folks, Gertrude. "Farm Labor Versus School Attendance." *American Child*, Vol. 2, pp. 73-89, May, 1920.

schools and lack of transportation, indifference of parents, inadequate rural schools, but most of all farm labor are the big influences in causing poor attendance in rural schools with consequent injury to scholastic progress.

Similarly, the *Monthly Labor Review* for December, 1922,<sup>15</sup> reports that of 869 children in a district of one of our communities 83.8 per cent of them worked on farms and attended school 70 to 75 per cent of the year, with the result that only 69.97 per cent of their number were promoted as against 80.4 per cent of the others in the same district who did not work on farms.

These rather short studies indicate that in rural districts a distinct relation exists between school attendance and school marks and school progress.

The most scientific study of school attendance in rural communities is that made by George H. Reavis<sup>16</sup>, who has proved conclusively that distance from school with no transportation provided is the principal cause of poor attendance and its consequent effects in such districts. He says that in the case of poor attendance and poor quality of work both factors are perhaps both cause and effect. He is quite certain that a pupil's standing in his class is related closely to the number of days he is present, but he also adds that his attendance in any one year, by affecting his standing in his class, also affects his attendance in succeeding years. The data which Reavis presents are so complete that it is possible to form definite conclusions from his figures. He considered the relations between attendance, distance from school, school marks, school progress, type of building, qualifications of teachers, and the educational interests of the communities in which pupils lived.

The study of R. W. and Hermann Cooper<sup>17</sup> is largely rural in the sources of its statistics. From their point of view, they have established a quite clear relation between attendance and school progress as well as school promotion. They have gathered figures which show that the percentage of days present during a school year bears a distinct relation to the number of promotions. In

<sup>15</sup> "Farm Work and City School Attendance." *American Child*, Vol. 2, pp. 139-144, August, 1920.

<sup>16</sup> Reavis, G. H. *Factors Controlling Attendance in Rural Schools*. Teachers College, Columbia University, Contributions to Education, No. 108, p. 17, New York, 1920.

<sup>17</sup> Cooper, Richard Watson and Hermann. *The One Teacher School in Delaware, A Study of Attendance*. University of Delaware Press, Newark, Del., 1925.

1917-18 only 50 per cent of those present 50 per cent of the time were promoted, while 90 per cent of those present 90 per cent of the time passed successfully at the end of the school year. Girls in New Castle ahead of their grade attended 65 days more than girls two years or more behind in their grades; boys nine years old attended 29 days more than boys 13 years of age and 58 more days a year than boys 15 years of age. Boys who were not promoted showed 50 per cent more of absence than those who were successful, and a not-enrolled record four times as large. By a not-enrolled record the authors mean the number of days when names of pupils were not on the books of the school even though the school was holding sessions. The authors summarize their study by stating that in 221 one-teacher communities, non-attendance consumed 26 per cent of days when the schools were open, and that 26 per cent of pupils failed of promotion. They admit that 10 per cent of these would have failed regardless of their attendance record.

Causes for non-attendance are given as follows:

	Per Cent
Agricultural Work .....	40
Illness .....	29
Other Work .....	11
Parental Indifference .....	8
Weather .....	5
Other Causes (poverty, truancy, being out of town, etc.) .....	5

The authors did not consider in their study such elements as intellectual ratings of pupils, conditions of buildings, or types of teachers. Nationalities of children and physical environments of homes were not tabulated in such a manner as to measure the effects of these factors on either attendance or school progress and school marks.

The conclusions of the authors in regard to the effects of attendance on promotions and school progress are probably correct. Pupils who are absent for a considerable number of days at the beginning of a term and who leave one or more weeks before the close of school, as was true with many pupils in these schools in Delaware, would naturally not take a great interest in their work while enrolled in the school. They would, moreover, have

to show an extraordinary brightness and application under such a truncated schooling in order to convince their teachers that they deserved to pass. The figures in regard to the better attendance of younger pupils prove only that in this particular school situation, where retardation is evidently very great, retarded pupils attend poorly.

From this rather unusual situation in Delaware no general principles can be deduced which are applicable to the majority of other situations except the one that excessive amount of absences bear a distinct relation to non-promotion and retardation. It is not possible to ascertain whether this relation is greater or less than the relation of elements other than absence. There are no means provided by the data as published in this study to eliminate by partial correlation or other means the effects of many factors which might influence the school marks and school promotions of boys and girls.

#### SCIENTIFIC STUDIES OF SCHOOL ATTENDANCE IN CITY SCHOOL DISTRICTS

In a study carried on in a New England city, William J. McCleary<sup>18</sup> reported that sickness caused 31.3 per cent of the absence, helping at home 28.4 per cent, change of residence 7.3 per cent, misbehavior 8.7 per cent, and tardiness 6.1 per cent. McCleary tells nothing concerning the effect of sickness on the school progress of the children. E. F. Ewing,<sup>19</sup> however, says that the greatest cause of retardation is irregular attendance due to illness, lack of interest in school, change of residence, and methods of promotion.

In a careful study made of the records of from 182 to 222 pupils in the Lincoln School, Mason<sup>20</sup> recorded that the percentage of absences due to sickness ranged from 8.9 per cent in 1917-1918 to 7.1 per cent in 1920-1921. He does not, however, make any statement in regard to the influence of such matters on school marks and school progress. Charles H. Keene<sup>21</sup> believes

<sup>18</sup> McCleary, William J. "The Attendance Officer, His Qualifications and His Work." *Educational Review*, Vol. 35, pp. 16-20.

<sup>19</sup> Ewing, E. F. "Retardation and Elimination in the Public Schools." *Educational Review*, Vol. 46, pp. 252-272.

<sup>20</sup> Mason, Howard H. "Health and Regularity of Attendance." *Teachers College Record*, Vol. 24, No. 1, January, 1923.

<sup>21</sup> Keene, Charles H. "Effect of Conditions of School Heating and Ventilation on School Room Attendance." *School Review*, Vol. 22, pp. 20-25, January, 1914.

that portable buildings and open-window classes proved of advantage in reducing absences during certain months of one year from 5.3 per cent to 2.3 per cent. His study, however, does not provide data from which to discover whether this decrease was accompanied by an increase in school marks or whether more students were promoted as a result of attending school more regularly.

Edward B. Shallow<sup>22</sup> in the 1916 proceedings of the National Education Association states that increase in regular attendance facilitates the planning and execution of work by the teacher and that more time can be given by the teacher to the primary duty of teaching. He claims, moreover, that with regular attendance retardation decreased. His claims were based on figures which show that 50 per cent of the non-promoted were absent over two-fifths of the term and 70 per cent were absent 30 days in a half year.

Somewhat similar to these conclusions are those of the U. S. Bureau of Education<sup>23</sup> which in 1916 presented an interesting report in regard to Richmond, Va. This showed an absence among white children of fewer than 10 days in 76 to 92 per cent of the terms ending in promotion; during the terms ending in non-promotion, absences were shown of less than 10 days in 58 to 72 per cent of the cases. Children dropping out included a large majority of those who entered late. Normal progress seemed to be expected of those entering at the age of seven years.

#### OPINIONS OF STRAYER AND THORNDIKE

Strayer and Thorndike<sup>24</sup> refer extensively to an investigation by Keyes<sup>25</sup> in their textbook where they discuss school attendance. Keyes studied the effects of the following on the progress of pupils: age of entrance, school absence, visual defects, family conditions, changing of schools, per cent of pupils from non-English-speaking homes, and average deportment for six years.

<sup>22</sup> Shallow, Edward B. "Does a Strict Enforcement of the Compulsory Education Law Assist Teachers and Supervisors in Their Work?" *Proceedings of National Education Association*, 1916, pp. 1094-1099.

<sup>23</sup> U. S. Bureau of Education Bulletin 1916, No. 3, pp. 1-93.

<sup>24</sup> Strayer, G. D., and Thorndike, E. L. *Educational Administration*, pp. 41-45. The Macmillan Company, New York, 1914.

<sup>25</sup> Keyes, C. H. *Progress Through the Grades*. Teachers College, Columbia University, Contributions to Education, No. 42, pp. 23-62.

Keyes' results show that:

Of those absent 20 to 30 days, 92, or 14 per cent, failed of promotion; of those absent 30 to 40 days, 45, or 15 per cent, failed of promotion; of those absent 40 to 50 days, 20, or 14 per cent, failed; of those absent 50 days or more, 152, or 50 per cent, failed. The last group, of course, included many who entered the first grade and were withdrawn, or who were later kept out of school for a very large fraction of the year. Consequently, its percentage is not directly comparable with the other percentages.

For such pupils, loss of from 50 to 150 days of school is thus shown to increase the chance of arrest that year by 87 per cent over what it is for one who is absent from 20 to 50 days. Loss of from 20 to 50 days apparently increases the chance of arrest that year by 130 per cent over what it is for one who is absent 0 to 20 days.

On the whole, the effect of absence is small until very large amounts of absence are reached....Changing schools about doubles the probability that a pupil will repeat the work of the year in question....Greater still is the condition of the pupil as to heredity and home environment.

....one-fourth of the 613 accelerates were furnished by one-fifteenth of the families represented in this class and similarly almost one-fourth of the arrests came from one-fourteenth of the families represented.

Strayer and Thorndike conclude:

Late entrance to school is a common cause of over-ageness or retardation in the customary sense. Since those who enter early lose a grade no more frequently than those entering late, the latter obviously tend to contribute largely to the over-age pupils. Now late entrance is in large measure a secondary result of original lack of scholarly ability. If the children who now begin Grade 1 at seven or older were all sent at six or younger, very many of them would have to spend two or more years in that grade.

Keyes' thesis, although valuable, does not enable us to analyze the relative effects of other elements than attendance upon school promotions and school progress inasmuch as his statistics are not arranged in such a way as to permit of partial correlation being applied to the results. The comments of Strayer and Thorndike, although apparently sound, also fail to carry scientific conviction for the reason that they have data which are too incomplete for satisfactory conclusions.

O'Brien<sup>26</sup> also makes statements which are probably true but which he is unable to substantiate. He concludes in his study of high school failures that perhaps "one of the simplest factors with a prognostic value on failure may be found in the facts of atten-

<sup>26</sup> O'Brien, F. P. *The High School Failures*. Teachers College Contributions to Education, No. 102, p. 29.

dance." Persistent or repeated absence from school may reach a point where it tends to affect the number of failures. "Unfortunately," says O'Brien, concerning his study, "reports for attendance were incomplete or lacking in a considerable portion of the records employed in this study." Consequently, in one of the most complete studies of high school failures which we possess, we are unable to consider the effects of what the author himself says is a factor of real prognostic value.

#### RECENT STUDIES

The study of Rosenberry<sup>27</sup> in California is valuable in its actual findings. He discovered a correlation of +.38 between habitual absence and marks of 3, 4, and 5 and of +.33 between superior intelligence and marks of 1 in a school where there were five marks given to pupils. The study dealt with 1,400 pupils in a junior high school in which all grades from 7 to 9 were taken into consideration. Rosenberry's figures are valuable as showing that there is a greater relation between habitual absence and poor marks than there is between superior intelligence and high marks even though this difference is slight. It would have been desirable, however, to have discovered what these relations proved to be as the amount of absence decreased and also as the superior intelligence of pupils approached the normal type and finally reached those of low intelligence.

Like Rosenberry, Charles W. Odell<sup>28</sup> gives us some definite figures on this subject. His study is a genuine effort to discover, if possible, what connection there is between regular attendance and school marks as well as school grades reached. His conclusion is that the per cent of time which a pupil attends school has a rather definite effect upon his powers of achievement at the end of a given period under consideration; that, on the whole, attendance appears to be a factor conditioning achievement, but not so weighty a factor as many have believed; that there is almost no relation between the intelligence of children and their attendance.

What seems at first glance to be a rather surprising conclusion

<sup>27</sup> Rosenberry, E. E. A Master's thesis, University of Southern California, Los Angeles, 1924.

<sup>28</sup> Odell, Charles W. "Effect of Attendance upon School Achievement." *Educational Research Circular, No. 16.* University of Illinois, Urbana, Ill., 1923.

was reached by Ross<sup>29</sup> in a recent study completed by him in regard to the relations between the attendance of pupils in the grades below the high school and the average of their school marks in the high school, and also their individual marks in high school English, mathematics, and Latin. Except in two cases, these relations were negative, and, in those two, the positive correlations were only .10 and .01. Ross says:

....absences for brief periods in the grades seem to favor success in high school, being apparently the pardonable offense of the capable pupils whose parents keep them at home a day or so now and then for entirely legitimate reasons—illness for example—and who are able to make up the work covered by the class while they were away. It seems probable, however, that pupils who are absent a great deal are never able to complete the grade school at all.

It is worth noting that Ross in his thesis did not use partial correlations to eliminate other elements which might have affected the school marks or the school attendance of the pupils whom he studied. Neither does he tell us anything concerning the relations between attendance and school marks or school grades in the senior high school. This study is, therefore, of little value in shedding much light upon our present problem.

#### SUMMARY

1. The opinions of well-known educators such as J. W. Davis, Bagley, Cubberley, Strayer, Engelhardt, and Monroe agree as to the important relations which exist between school attendance and school marks and also between school attendance and school progress. They believe that regular attendance of pupils necessarily reflects itself in the results accomplished by pupils in efficiently managed school systems.

2. Reavis and the Coopers, through their detailed studies, substantiate the opinions expressed in lesser investigations that in rural districts there is a clear relation between school attendance and school marks; also between attendance and school progress. Reavis employed partial correlations to give his statements genuine value. His conclusion concerning distance from a school building without transportation provided as the principal cause of poor attendance is also important.

<sup>29</sup> Ross, Clay Campbell. *The Relation between Grade School Record and High School Achievement*, p. 17. Teachers College, Columbia University, Contributions to Education, No. 166. New York, 1925.

3. All studies which have been made concerning school attendance in city school systems present conclusions similar to those for rural districts. Strayer and Thorndike, however, conclude that the effect of absence is small until very large amounts of absences are reached. Odell believes that attendance appears to be a factor conditioning achievement but not so weighty a factor as many have thought it to be.

4. Very little information was found dealing with school attendance in a junior high school in which both partial correlation and the critical ratio were employed to discover the significant relations of school attendance with school marks and with other factors.

## CHAPTER III

### RELATIONS OF SCHOOL ATTENDANCE WITH OTHER ELEMENTS IN SCHOOL LIFE

In order to solve scientifically the problems presented in Chapter I in regard to the actual relation existing between school attendance and school marks and school progress, a detailed study was made of a group of 307 pupils in the 7B grade of a junior high school in a Pennsylvania city of about 150,000 inhabitants. This particular school and this particular grade were selected for several reasons.

In the first place, this school was located in an industrial city of the eastern United States, containing varied industries with many different social strata and a large population of individuals born in foreign countries. In the second place, the school itself provided unusual opportunities for the gathering of the detailed data desired, together with those conditions necessitating the least possible qualifying of the data. All the pupils studied in the same building and had the same advantages in regard to health and equipment. The same truant officer looked after all the delinquent pupils. Moreover, children from homes and environments of varying standards of life were in the class studied. In addition to these facts, before these pupils entered this grade, they had been given the Illinois Intelligence Test. The results of this test combined with grades made in the Hillegas Composition Test were used to place pupils in that one of nine divisions to which the scores of these tests entitled them. The results of such groupings are, for the sake of brevity, referred to in this thesis by the term "ability." Finally, the 7B grade is the first grade in Pennsylvania which children 14 years of age or over are not compelled to attend.

The residences of pupils varied from streets adjacent to the school to a distance of almost three miles, so that the effects of distance could be carefully considered. The card records of these pupils provided an exceptionally large amount of information not only in regard to race, residence, age, and grade, but also

PLATE I  
PERMANENT RECORD CARD OF PUPILS ENROLLED IN A PENNSYLVANIA JUNIOR HIGH SCHOOL

## PERMANENT RECORD

FIRST NAME	MIDDLE NAME	LAST NAME	DATE OF BIRTH	AGE	DATE OF ENTERING SCHOOL	FROM	TO	TERM	MONTHLY RECORDS	
									FATHER'S STATEMENT	MOTHER'S STATEMENT
PLACE OF BIRTH	COLON									
COUNTRY OF BIRTH OF STUDENT	HOME ADDRESS									
COUNTRY OF BIRTH OF FATHER	FATHER'S OR GUARDIAN'S NAME	ADDRESS								
COUNTRY OF BIRTH OF MOTHER	MOTHER'S NAME	ADDRESS								
FIRST YEAR										
MONTH	MATH	DATE	PHONE	MARK	DATE	MARK	DATE	MARK	GENERAL INTELLIGENCE	
FIRST									A	Arithmetic—Fundamentals
HALF									T	Arithmetic—Reasoning
									E	English—Composition
									S	Reading
									T	Spelling
									S	Penmanship
									N	Home Teacher's Rating
SECOND YEAR										
MONTH	SUBJECT	DATE	PHONE	MARK	DATE	MARK	DATE	MARK	PERSONAL ATTACHMENT	
FIRST									C	Dave Abbott
HALF									I	Yvonne Baby
									T	Tommy Baby
									T	Taffy
									I	Self Control
									Z	Reliability
									E	Coo-operation
									N	Courtesy
									S	Diligence
									H	Fair Play
									I	Care of Property
THIRD YEAR										
MONTH	SUBJECT	DATE	PHONE	MARK	DATE	MARK	DATE	MARK	HYGIENE	
FIRST									H	Hygiene
HALF									E	Exercise
									C	Clothes
									A	Nutrition
									V	Personal Appearance
FOURTH YEAR										
MONTH	SUBJECT	DATE	PHONE	MARK	DATE	MARK	DATE	MARK	ACTIVITIES	
FIRST									A	Athletics
HALF									C	Orchestra or Band
									T	Amateur
									S	School Paper—
									V	Club
									I	Class Officer
									T	Community Work
									E	Home Room Officer
									S	Editorial Office

concerning the home-room teacher's estimate of such elements as coöperation, thrift, and other qualities just as desirable in a pupil's life as marks in formal studies. Reproductions of the two cards employed are given as Plate I and Plate II.

PLATE II

PROMOTION RECORD CARD OF PUPILS ENROLLED IN A PENNSYLVANIA JUNIOR  
HIGH SCHOOL

A\*

1. LAST NAME		2. FIRST NAME		PENNSYLVANIA <i>Public Schools</i> ADMISSION, DISCHARGE, AND PROMOTION CARD	
3. PLACE OF BIRTH		4. DATE OF BIRTH		5. NATION- ALITY	
6. NAME OF PARENT OR GUARDIAN		7. OCCUPATION OF PARENT OR GUARD- IAN.		To be kept for every pupil and sent to room or school to which pupil is promoted or transferred, either public or private, in the city or outside the city. Great care should be used to have the name <i>complete</i> and <i>correct</i> .	
8. RESIDENCE (Use one column at a time. (Give new residence when pupil is transferred).				9. Date of Discharge	10. Age, Years, Months.

B\*\*

\* A=Front of Card.

\*\* R = Back of Card.

## DEFINITION OF TERMS

Most of the terms employed in this study are used with their commonly accepted meanings. A few of them, however, require some explanation.

The word "attendance" is used in two senses closely resembling each other. In the first place, it generally refers to the number

of days a child attended school while in the 7B grade. In one or two instances, however, it includes the total number of semesters in school which a pupil has completed from the time when he first enrolled. The connection in which the term is used indicates clearly in which sense it is employed.

A child is regarded as "on time," if he is in the grade or half-grade which he should have reached, provided he had entered the 1B grade at the age of six and had advanced regularly one-half year for every semester of his school life. Thus in the 7B grade a child would be twelve years of age or younger in order to be regarded as on time. A pupil twelve and one-half years of age would have one-half year of age-delay, a pupil thirteen years of age would have one year of age-delay, a pupil fourteen years of age would have two years of age-delay. The use of the term "age-delay" is, in the mind of the author, a fairer method of estimating progress of school children than the commonly accepted term "retardation," which applies only to children after they are from one and one-half to two years behind the grade in which they should be enrolled if they had advanced regularly one-half grade for every half-year enrolled after having entered the 1B grade at the age of six years.

The common method of measuring the efficiency of school progress in a school system by retardation was reasonable enough in a period when over-ageness was very pronounced. A leeway of one and one-half years up to two years in a grade before measuring what is technically known as retardation seemed quite legitimate twenty or even ten years ago.

At the present time it is unfair for any school system to misrepresent its conditions as possessing from 50 to 100 per cent fewer pupils with an age-delay than actually is the case. Many school superintendents are striving earnestly to improve their school systems by a wise organization of courses, by sane standards for completion of grades, by careful supervision of teachers, and by the introduction of wise methods of teaching. These men are laboring under the handicap of having their systems judged by existing methods. At the present time, this method does not reveal adequately the results of their efforts, as their improvements are considerably lost in the jumble of a "two-year leeway." If, on the other hand, only a few persons adopt the new method of presenting age-delay, their schools will suffer in the compari-

sons of unscientific observers with schools in which the larger leeway is still permitted. Moreover, with the constant effort to reduce the amount of time which pupils are spending in grades and high schools, with the efforts to bring down the junior college into the public school system, with the desire to have young men finish their college and professional schools earlier in life, the new method will inspire school people to have their pupils progress as nearly on time as possible with due regard to reasonable standards of progress without the added costs of "repeating" grades, and without the over-ageness which so frequently results in the elimination of backward children from our schools.

The term "over-ageness" should imply the same idea as "age-delay." The latter term is recommended, however, as a more effective means than the former for calling attention to the desirability for the abandonment of the old term "retardation."

#### STATISTICAL TECHNIQUE EMPLOYED

Except in instances where the contrary is stated, the mean was employed instead of the median in this investigation. Other terms employed included the median, the sigma, the Pearson coefficient of correlation, partial correlation, and the critical ratio. These have been clearly explained in many modern texts on statistical methods such as those by Rugg<sup>1</sup>, Reavis<sup>2</sup>, McCall<sup>3</sup>, Yule<sup>4</sup>, McGaughy<sup>5</sup>, and Jones<sup>6</sup>.

The critical ratio formula is, however, repeated below for those who may not be able to recall it readily.

$$\begin{aligned}
 \text{Critical Ratio} &= \frac{\text{Mean A} - \text{Mean B}}{\text{P. E. of Differences}} \\
 &= \frac{\text{Mean A} - \text{Mean B}}{\sqrt{\left(\frac{.6745 \sigma_A}{N_A}\right)^2 + \left(\frac{.6745 \sigma_B}{N_B}\right)^2}} \\
 &= .6745 \frac{\text{Mean A} - \text{Mean B}}{\sqrt{\frac{\sigma_A^2}{N_A} + \frac{\sigma_B^2}{N_B}}}
 \end{aligned}$$

[For references <sup>1</sup> to <sup>6</sup> see page 20.]

## GATHERING OF DATA

*School Marks and School Progress.* The school marks were taken directly from the pupil record cards of the school. Six different letters had been employed to indicate various standards of excellence. Five of these, A, B, C, D, and E were regarded as passing, and one mark, F, as a failure. It had been suggested to the teachers that for an entire grade, marks should correspond approximately to a normal curve of distribution, but no effort had been made to advise them how desired results could be obtained in the case of individual groups differing widely in ability.

The data for school progress were also taken directly from the record cards. A pupil was regarded as "on time" if, according to his age, he had reached the 7B grade at the date when he should have reached it if he had entered at the age of six and had advanced a half-grade for each half-year during his school attendance. Ages were calculated by the method advocated by Strayer and Engelhardt<sup>1</sup> by which a child is considered eleven, eleven and one-half, etc., according to his nearest age at the time he enters the grade in which he is enrolled. The statistics in regard to accomplishment ability corresponded with the divisions into which the pupils had been placed by the use of tests before they entered the junior high school.

*Physical Environment of Homes.* In obtaining the data for the material relating to the physical environment considerable difficulty was experienced. The following procedure was finally adopted. The author drew off the addresses of the different pupils on cards to which no names were attached. These cards were then arranged in thirteen different groups, according to

<sup>1</sup> Rugg, Harold O. *Statistical Methods Applied to Education*, p. 256. Houghton Mifflin Company, New York City, 1917.

<sup>2</sup> Reavis, G. H. *Factors Controlling Attendance in Rural Schools*, p. 63. Teachers College, Columbia University, Contributions to Education, No. 108, New York City, 1920.

<sup>3</sup> McCall, Wm. A. *How to Experiment in Education*. Chaps. IX and XII, pp. 208-244. The Macmillan Company, New York City, 1923.

<sup>4</sup> Yule, G. U. *An Introduction to the Theory of Statistics*. London, 1916.

<sup>5</sup> McGaughy, J. R. *Fiscal Administration of City School Systems*, pp. 9-10, 69-74. The Macmillan Company, New York City, 1924.

<sup>6</sup> Jones, D. C. *A First Course in Statistics*, pp. 159-161. Bell & Sons, London, 1921.

<sup>7</sup> Strayer and Engelhardt. *School Record Series*, p. 18. C. F. Williams & Son, Albany, N. Y., 1919.

their desirability for home locations, by one real estate dealer of over fifteen years' experience, who was familiar with the section of the city in which the addresses were located. The author then went over these groupings and discussed them with him, and as a result certain changes were made. The tabulation of these data constituted the first group of statistics in regard to environment.

Another set of similar cards was then given to another real estate dealer and similarly grouped by him. This second group was then given to a physician familiar with the addresses and environment of these addresses and the groupings modified in such instances as seemed wise to him.

These ratings of the second realtor and the physician constituted a second table of statistics in regard to environment. The correlations between the first and this second group of statistics proved to be .80, which showed that the estimates of the persons engaged in the groupings were fairly reliable.

The author then combined the individual figures in the two groups of statistics. In cases where the average of combining these figures would have resulted in a half figure, in order to retain whole numbers the result was calculated in favor of the rating given by the first two who made the groupings.

*Economic Status of Parents.* In placing a financial rating on the parents of the children represented in this study, no satisfactory method could be devised. It was found by inquiry at the Income Tax Bureau in the city that very few of the parents paid any income tax. An effort was then made to discover the average salary of the different occupations represented by the parents on the basis of thirteen divisions with differences of \$500 a year in each division.

Estimates by one of the members of the Central Labor Bureau and other persons of judgment in the city were obtained and their judgments were combined, with results not as scientific as desirable. The scale of salaries began with one, representing homes in which the income of parents was \$1,500 or less. The highest rating represented the homes in which the income was over \$7,000.

These results, however, even if accurate, would not represent correctly the actual economic status of the home of a pupil. The number of other members in the home earning incomes, the num-

ber of children in the home not earning incomes, inherited or acquired incomes not indicated by salaries, and other factors would have to be considered in obtaining a correct estimate of the actual financial conditions in a home. The scope of this investigation did not permit an inquiry which would have necessitated months of labor and which in itself would have constituted an extensive study. That even the figures which were obtained, however, have value, is indicated by the correlation which was found to exist between the financial status of families of children and their physical environment. This was +.58.

*Distance from School.* The distances from school at which pupils lived were calculated by concentric circles described one-eighth of a mile apart on a map of the city with the junior high school as the center of each circle. Distances were then tabulated according to the circle in which the address of each pupil was located. Although such a method did not take into consideration the fact that few pupils could go directly to their homes by the radius distance from the school, nevertheless, this seemed on the whole a fairer method than estimating the distances of homes of pupils from schools by endeavoring to figure out just how far they would travel to their homes by the shortest possible routes. Many of the pupils were brought to school by autos each day; over 50 per cent of them could reach the school directly or indirectly by electric cars.

The data in regard to children whose fathers were born in countries other than the United States were accurate. These were taken directly from the record cards of pupils.

#### ELEMENTS DELIBERATELY OMITTED

*Health of Pupils.* The question of the effect of a pupil's health on his school attendance has not been considered in this study. A preliminary study of over 300 pupils in each of the grades, 1 to 8, of the city in which the final study was made showed that the teacher's estimates of the health of the pupils had no bearing on the attendance records of pupils. A compilation of over 2,000 such possible relations for the eight grades indicated no connection at all between the two. The yearly examinations of pupils in the school system dealt largely with individual physical defects rather than general health; the grades in gymnasium work and hygiene were mainly for attendance, physical accomplish-

ments, and intellectual knowledge. No method of marking the very intangible element of vitality or general health of pupils had yet been put into practice in this school. That health, however, has or should have an effect on school attendance and school marks is probable.

*Personality of Instructors.* The effect of the personality of individual instructors on the school marks and attendance of pupils should be considered in a study of attendance. The discovery of the extent of this effect presents many difficulties in a school where a pupil meets from five to ten different personalities in class work during a week. An unsatisfactory effort was made, however, to note the effect of home-room teachers. These instructors in the school studied looked after the attendance records of the pupils every morning, and had an opportunity to acquire a strong, genuine acquaintance with their pupils during home-room periods which averaged a half-hour each day during the five days of the week.

*Building and Equipment.* The effect of the building and its equipment on the attendance and school marks of pupils was not regarded in this study. The building was not quite a year old, had the most modern equipment, and was arranged with the idea of providing every possible convenience for the health and comfort of pupils and teachers.

*Curriculum of the School.* The influence of the curriculum of the school was not considered in this study. It was, however, very modern in the variety of its offerings of music, drawing, practical arts, gymnasium, hygiene, and auditorium periods along with the subjects generally offered to 7B pupils, such as geography, history, arithmetic, practical English, and literature.

The periods in the school were one hour in length. The length of the school day was from 8:30 to 3:30 with a recreation period of twenty minutes, a lunch period of thirty minutes, and a home-room period of thirty minutes every day. Club periods of one hour a week were held, although these were not developed in an entirely satisfactory manner during the semester in which the study was made.

Pupils in the 7B grade were allowed to study at home the subjects of English and mathematics only. Directed learning in the classrooms was carried out by the teachers with, however, no pre-

scribed division of silent study and recitation divisions indicated by ringing of bells or other mechanical means.

#### SUMMARY

The data for this study were obtained from 307 pupils in the 7B grade in a junior high school which had been in operation less than a year.

Most terms employed in this study are used in their commonly accepted meanings. "Attendance" and "age-delay" have, however, been given special interpretations.

The statistical methods employed involved the use of the arithmetical mean, the median, the Pearson coefficient of correlation, the coefficient of partial correlation, and the critical ratio.

Data were obtained in regard to school attendance, school marks, school progress, ability of pupils, economic status of parents, home environment of parents, and distance of homes from the school.

## CHAPTER IV

### SCHOOL ATTENDANCE AND ITS SIGNIFICANCE

The result of the investigation to discover, on the one hand, the relations existing between school attendance and school marks and school progress, and, on the other, the relation of school attendance to other elements in the lives of pupils in a 7B grade of a junior high school reveals some interesting, valuable, and suggestive data. The tables compiled and the discussions of these tables are contained in this and the following chapters. Table I gives the different number of divisions for each item. In the later discussion, 1 is considered the lowest figure in the statistics. Table II shows the relations existing among all of the different elements studied when the average of eight subjects is considered as the school mark. Table III shows the relation existing between attendance and each of these different factors after the method of partial correlation has been employed to make all the other factors constant.

TABLE I  
NUMBER OF GROUPS INTO WHICH DATA WERE DIVIDED FOR DIFFERENT  
FACTORS STUDIED

ELEMENT	NUMBER OF DIVISIONS
Scholarship.....	6
Attendance.....	15
School Progress.....	8
Ability.....	9
Environment (Physical).....	12
Economic Status.....	13
Distance.....	13

#### RELATIONS OF SCHOOL MARKS WITH OTHER ELEMENTS

Tables II and III reveal positive, but not high relationships between attendance and ability, school marks, and school progress,

although the basis for computing the accomplishment ability of pupils was, to an extent, the same factors which determine a pupil's marks and his school progress. The difference between the  $r$  of ability with attendance, and of school marks with attendance could be accounted for by the large variety of subjects offered in the 7B grade of the junior high school as compared with the material employed for obtaining the accomplishment rating of pupils. The larger difference between the  $r$  of ability with attendance and that of school progress with attendance may be due to the fact that a child's progress in

TABLE II

CORRELATION BETWEEN SCHOOL ATTENDANCE AND SCHOOL MARKS, SCHOOL PROGRESS, ABILITY, ENVIRONMENT, ECONOMIC STATUS, AND DISTANCE FROM SCHOOL OF PUPILS IN THE 7B GRADE OF THE JUNIOR HIGH SCHOOL

CORRELATION BETWEEN	SCHOOL MARKS	SCHOOL PROGRESS	ABILITY	ENVIRONMENT	ECONOMIC STATUS	DISTANCE
Attendance.....	.34	.35	.25	.24	.21	-.13
School Marks.....		.26	.32	.34	.18	.05
School Progress.....			.17	.23	.12	-.07
Ability.....				.37	.13	-.02
Environment.....					.58	-.19
Economic Status.....						-.13

TABLE III

RESULTS OF APPLYING THE METHOD OF PARTIAL CORRELATION TO STATISTICS OF TABLE II

CORRELATION BETWEEN	$r$
Attendance and School Mark with the Other Five Elements Remaining Constant:.....	.23
Attendance and School Progress with the Other Five Elements Remaining Constant.....	.27
Attendance and Ability.....	.13
Attendance and Environment.....	-.03
Attendance and Economic Status.....	.11
Attendance and Distance.....	-.12

school does not depend alone upon his powers of achievement.

The partial correlations for these relations are not greatly different from those discovered by Reavis for children from 12 to 14 years of age. Where he found an  $r$  of .25 between attendance and school marks, this figure is .23; and where he found an  $r$  of .35 to .40 for attendance and school progress, this figure is .27.

In comparing Reavis' results with the results in this study, however, it is well to remember that the mean age of the junior high pupils was about 12½ years and that the children in his investigation for whom these figures are quoted were all over 12; that the children in the junior high school grade were all in the 7B grade and that his children were in different grades.

TABLE IV A

MEAN ATTENDANCE OF PUPILS WITH DIFFERENT MARKS IN SCHOLARSHIP IN GRADE 7B OF THE JUNIOR HIGH SCHOOL

NUMBER OF CASES	SCHOOL MARK	MEAN NUMBER OF DAYS ABSENT	SIGMAS (DAYS)
3.....	6	1.66	1.88
57.....	5	4.00	5.12
173.....	4	9.66	10.10
66.....	3	13.12	9.26
8.....	2 & 1	20.00	7.62
74.....	3, 2 & 1	13.76	9.30

TABLE IV B

APPLICATION OF THE METHOD OF THE CRITICAL RATIO TO TABLE IV A TO DISCOVER THE RELATION BETWEEN SCHOOL ATTENDANCE AND SCHOOL MARKS

COMPARISONS	Critical Ratios
Attendance of Pupils with School Mark of 5 Compared with Pupils with School Mark of 4 or Lower.....	8.30 or greater
Attendance of Pupils with School Mark of 4 Compared with Pupils with School Mark of 3 or Lower.....	3.76 or greater
Attendance of Pupils with School Mark of 3 Compared with Pupils with School Mark of 2 and 1.....	3.51
Attendance of Pupils with School Mark of 4 Compared with Pupils with School Marks of 3, 2, and 1.....	4.66

## 28 *School Attendance as a Factor in School Progress*

In order to study carefully the significance of these low  $r$ 's between attendance and the six other factors considered in this study, a second measure of relationship was employed. It was felt that while a high  $r$  of .50 or more indicated a real connection between the elements studied, there might also be concealed in a low  $r$  relationships of vital significance. The method of the critical ratio was therefore employed for this purpose.

In the analysis of the relationship between attendance and the factors affecting it, significant relations were discovered in every instance except between ability and attendance.

These results are tabulated in Tables IV, V, VI, VII, VIII, and IX of this chapter. In Table IV, it may be noted that pupils who received average marks of 6 or 5 attended school a significantly larger number of days than those receiving a lower mark. Conversely, our figures in Table V show that pupils absent three or fewer days received a significantly higher mark than those

TABLE VA

MEAN MARKS IN SCHOLARSHIP OF THREE GROUPS OF STUDENTS WITH VARYING DEGREES OF EXCELLENCE IN ATTENDANCE

THREE GROUPS OF STUDENTS WITH VARYING DEGREES OF EXCELLENCE IN ATTENDANCE	CASES	SCHOOL MARKS	SIGMAS (SCALE OF 6)
Mean Attendance of All Pupils.....	307	3.93	.76
Pupils 15 or More Days Absent.....	75	3.55	.74
Pupils Absent Fewer Than 2 Days.....	54	4.29	.64

TABLE VB

APPLICATION OF METHOD OF THE CRITICAL RATIO IN THE COMPARISON OF SCHOOL ATTENDANCE WITH SCHOOL MARKS

COMPARISON	Critical Ratios
Pupils Absent Fewer Than 2 Days Compared with Those Absent 15 or More Days.....	8.96
Pupils Absent 15 Days or More Compared with Those Absent Mean Number of Days for Entire Class .....	5.93
Pupils Absent Fewer Than 2 Days Compared with Those Absent Mean Number of Days for Entire Class .....	5.62

who were absent the mean number of days for the class. These figures give a rather impressive weight to such a low partial correlation as +.23 existing between attendance and school marks.

#### CRITICAL RATIOS OF NORMAL AND DELAYED PUPILS AND ATTENDANCE

The critical ratios in regard to the difference between normal and delayed pupils are equally impressive, as shown in Table VI. As has been explained, the term "normal pupil" or "pupil on

TABLE VIA

MEAN ATTENDANCE OF PUPILS ON TIME AND OF THOSE DELAYED ONE-HALF YEAR, ONE YEAR, ETC.

PUPIL ATTENDANCE	CASES	MEAN NUMBER OF DAYS ABSENT	SIGMAS (DAYS)
On Time or Ahead of Grade.....	98	7.08	8.18
Delayed One-Half Year.....	50	7.46	7.88
Delayed One Year.....	40	7.96	6.24
Delayed One and One-Half Years.....	37	11.00	9.40
Delayed Two Years.....	30	14.10	11.24
Delayed More Than Two Years.....	52	13.46	11.16

TABLE VIB

APPLICATION OF METHOD OF THE CRITICAL RATIO IN THE COMPARISON OF ATTENDANCE OF PUPILS WITH THEIR PROGRESS IN SCHOOL

PUPIL ATTENDANCE	Critical Ratios in Comparison of Attendance of Above Pupils
Normal and One-Half Year Delayed Pupils.....	.41
Normal and One Year Delayed Pupils.....	1.02
Normal and One and One-Half Years or More Delayed Pupils.....	3.35 or greater
One-Half Year and One and One-Half Years Delayed.....	2.77
One-Half Year and Two Years at Least Delayed.....	4.13 or greater
One Year and Two Years at Least Delayed.....	4.08 or greater
One and One-Half Years and Two Years Delayed.....	1.80
One and One-Half Years and More Than Two Years Delayed.....	1.70

time" was figured on the basis of what grade a pupil should be in if he had entered the 1B grade within three months of his sixth birthday or earlier. A pupil with an age-delay of one-half year was one-half year behind the "normal pupil" or "pupil on time"; a pupil with an age-delay of one year was one year behind such a pupil; and so on. The results show that pupils on time or ahead of time attended school no better than those with an age-delay of one-half or one year. But pupils on time or ahead of time did attend school much better than those with an age-delay of one-and-a-half years or more. Pupils with an age-delay of one-half year attended better than those with an age-delay of two or more years. Pupils with an age-delay of one year attended better than those with an age-delay of two or more years. These results agree with Reavis' conclusions of the existence of a vital relation between a child's progress in school and his attendance record for a particular semester such as the 7B grade.

#### ATTENDANCE AND MARKS OF PUPILS IN GRADES BELOW THE 7B

In order, however, to have some basis for an opinion in regard to what significance these figures gathered for pupils in Grade 7B had, as compared with their records in previous years, the average school marks and the average attendance for these same pupils were found for the eight semesters preceding the one in which they were in junior high. A permanent record card was used for the collection of these data. These cards are made out as soon as a pupil enters the school system, and the average of a pupil's school marks and his attendance records are copied on them each semester. For the school marks, figures, not letters, are the standard in the city of this study except in the junior high school.

In computing the average attendance of pupils, the figures for the eight semesters previous to their entering the junior high school were added, and the total divided by eight; in obtaining the average for the school marks, the same method was employed. In case pupils had not been in the school system for eight semesters, below the 7B grade, the average attendance and the average of school marks were found for the period during which they had been in the school. The school marks were then divided into six divisions and the school attendance records into

fifteen divisions, in order to make them comparable with the statistics already tabulated. Marks below 70 were considered in division 1; 70 to 75 in division 2; 76 to 81 in division 3; 82 to 88 in division 4; 89 to 94 in division 5; 95 to 100 in division 6. The attendance figures were computed on the basis of two days to a division, considering all those who were present 95 days or more for a semester as in division 15. Correlation tables were then made between the averages of pupils in attendance and school marks for the semesters previous to their entering the junior high school and their attendance and school marks while in the 7B grade of that school.

The correlation of average marks of pupils for eight semesters previous to entering the 7B grade with their marks in this grade was found to be +.50. The critical ratio between the two was 1.00+.

The correlation of the average attendance of pupils for the eight semesters previous to entering the 7B grade and the attendance in 7B was +.71. The critical ratio was .14+.

This low correlation between school marks is not surprising. The different standards of different teachers is probably the chief reason for its not being larger. In Grade 7B, moreover, an effort was made with some degree of success to mark pupils with the normal curve in mind, although teachers were told to use it only as an ideal form of marking which probably no teacher would attain with a given class.

The higher correlation of attendance records is also not unexpected. The figures for these records are objective and uninfluenced by the personal equation. They indicate that pupils who attend well in one semester are very apt to attend well in another semester, and vice versa. It seems evident that the statistics in regard to the attendance and marks of pupils in Grade 7B in junior high school are a fair representation of what would have been found to be the statistics in regard to these matters in lower grades.

#### SCHOOL ATTENDANCE AND ABILITY

Since there is such a significant relation between school attendance and school marks and school progress, it is valuable for us to discover what the relationship is between attendance and ability possessed by children when they enter a given grade. The

partial correlation for this relationship is  $+.13$ , considerably lower than that between attendance and either school marks or school progress. Evidently accomplishment has not so much to do with school attendance as these other elements.

The critical ratios between ability and attendance as shown in Table VII are not easily interpreted. Pupils in groups 8, 7, and 6, supposedly high ability groups, attended school better than those in groups 4 and 1. But group 9, the highest of all accomplishment groups, showed a rating very similar to the rating of group 5 and of groups 2 and 3 at the lower end of the scale. Pupils in groups 9, 8, 7, 6, 5, 3, and 2 attended school better

TABLE VIIA  
MEANS OF ATTENDANCE RECORDS OF PUPILS IN DIFFERENT GROUPS  
OF ABILITY

GROUP ABILITY	CASES	MEAN NUMBER OF DAYS ABSENT	SIGMAS (DAYS)
9.....	35	9.52	10.64
8.....	37	6.34	7.66
7.....	30	6.18	5.32
6.....	35	6.38	7.22
5.....	38	10.02	8.78
4.....	33	13.16	11.34
3.....	30	10.34	8.88
2.....	36	10.22	9.90
1.....	33	17.90	9.76

TABLE VII B  
APPLICATION OF METHOD OF THE CRITICAL RATIO IN COMPARISON OF  
ATTENDANCE OF PUPILS WITH THEIR ACHIEVEMENT

	Critical Ratios
Group 8, 7, or 6 with Groups 4 and 1.....	4.00 or greater
Group 9, 5, 3, or 2 with Group 4.....	2.04 or less
Group 9, 8, 7, 6, 5, 3, or 2 with Group 1.....	4.00 or greater
Group 4 with 1.....	2.72
Group 4 with Group 2 or 3.....	1.70 or less

than those pupils in group 1, but group 4 had a much poorer attendance record than groups 2 and 3. Evidently ability in itself was not generally significantly related to attendance. It is necessary to discover some other reason for this difference in the attendance records of these groups.

#### HOME-ROOM TEACHER AND ATTENDANCE

This reason lies perhaps in the home-room teacher who had an opportunity to exert a personal influence over her pupils in the half hour which she had them each day of the week. It would have been desirable to have some expert personally unacquainted with these teachers rate them as to experience, teaching ability, appearance, and personality traits. This was impossible, however, so that only general statements can be made concerning them. The teachers of the three highest attendance groups were women of unusual strength of personality and preparation. One of them, although she had only a half-year of experience as a teacher, had been employed as a playground instructor for several years in the city and had learned the fine art of persuading boys and girls to do the things which they should do. In her college life she had been president of her class and had in all its activities shown herself a powerful personality.

One other of these teachers had profited by over ten years of experience after graduating from normal school. In addition to this, she had taken many courses in extension work or summer work at Columbia University. She was also of the kindly, sympathetic type, but firm, with no trace of mawkish sentimentality in regard to the "child." The third teacher was similar to the one just described.

In groups 1 and 4, the home-room conditions were not so favorable for influencing good attendance. The man in charge of one of them was a brilliant individual who had probably never taught children previous to his taking charge of the room. He gave insufficient attention to the development of the activities of his home-room and was not enthusiastic in "playing up" schemes for improving attendance. His ideal of teaching was to be an excellent teacher of subject matter and a strict disciplinarian. The other room was in charge of two men who alternated week by week in taking charge of the pupils. Neither man had ever had teaching experience previous to the year before the one in

which he took charge of the room. This alternation of the men in charge of the room proved very unfortunate, as neither one obtained a strong grip on the pupils. It proved, moreover, that both failed to check up carefully on the pupils who were not regular in attendance.

The factor of different teachers in influencing pupils in attendance is not recognized by Reavis, who believes the influence is slight. That they have more than slight influence, however, is suggested by these figures. It is difficult to make a scientific study of the extent of that influence because of the fact that objective measurements are apt to reveal only the least important parts of that power. It is easy to feel, but difficult to measure what is termed a well-equipped, powerful, sympathetic personality.

TABLE VIII A  
MEANS OF ATTENDANCE RECORDS OF PUPILS IN DIFFERENT ENVIRONMENT GROUPS

ENVIRONMENT GROUPS	CASES	MEAN NUMBER OF DAYS ABSENT	SIGMAS (DAYS)
12, 11, 10, 9, 8, 7...	43	6.22	7.66
6.....	34	6.20	6.88
5.....	25	9.44	10.98
4.....	37	10.34	6.06
3.....	58	10.08	9.58
2.....	76	12.50	10.54
1.....	34	13.20	9.76

TABLE VIII B  
APPLICATION OF METHOD OF THE CRITICAL RATIO TO SHOW THE RELATION BETWEEN THE ATTENDANCE RECORDS OF GROUPS IN TABLE VIII A

	Critical Ratio
Group 12, 11, 10, 9, 8, 7 or 6 with Group 5.....	1.94 or less
Group 12, 11, 10, 9, 8, 7 or 6 with Group 4 or lower .....	4.00 or greater
Group 5 with Group 4.....	.55
Group 5 with Groups 3, 2 or 1.....	2.00

### SCHOOL ATTENDANCE AND PHYSICAL ENVIRONMENT AND ECONOMIC STATUS

With the vital relationship shown between attendance and school progress, it is valuable to know also the relation between environment and economic status and school attendance as revealed by the use of the critical ratio.

Table VIII shows the relations in regard to environment. Evidently the environments poorer than 4, and, possibly, even poorer than 5 are such as to affect attendance, for there is a significant difference between the attendance of pupils living in environments 12, 11, 10, 9, 8, 7, and 6, and those living in 4 or poorer. An environment of standard 4 would be described as follows:

Locality: Partial improvement of homes.

Population partly foreign, partly American.

Desirability for homes—third rate.

Equally important is the relation between economic status and school attendance as shown in Table IX. Pupils whose parents have an income in group 13, 12, 11, 10, 9, 8, 7, 6 or 5 attend school better than those whose parents receive incomes in group 3, 2, or 1. There is also a difference between pupils whose parents receive an income denoted by group 4 and those in groups 2 and 1. Incomes of parents in group 3 are between \$2,000 and \$2,500 a year, in group 2 between \$1,500 and \$2,000, in group 1 under \$1,500 a year. The superiority in attendance of those in group 1 over those in group 2 might be due to the fact that many of the parents in economic group 1 were widows who were receiving assistance from older children or other relatives.

### SCHOOL ATTENDANCE AND DISTANCE OF HOMES FROM SCHOOL

The most prominent feature which attracts the attention of one familiar with Reavis' thesis on rural school attendance is the negligible part which, in the present study, distance played in affecting the attendance records of these pupils. Most of the 7B children enrolled in the junior high school lived more than one-quarter of a mile from the building and many lived from one to two miles away.

Reavis discovered a negative correlation of about  $-.25$  between distance and attendance for children twelve years of age and over. This corresponds with what in this study would be  $+.12$  after the

distance-attendance correlation had been cleared by partial correlation of other factors. But before this was done the figure was what, with his method of scoring distance, would have reached  $+.13$ . One may, therefore, conclude that living a long or a short distance from school did not greatly affect one's attendance, although in this instance those attending best lived at a greater distance than those attending poorly.

Stated in more general terms, it may be assumed that attendance is not seriously affected because the residences of most of the pupils range from one-quarter to two miles away from the school. In locating new buildings, therefore, the school boards

TABLE IXA

MEANS OF ATTENDANCE RECORDS OF PUPILS IN DIFFERENT ECONOMIC GROUPS

ECONOMIC GROUPS	CASES	MEAN NUMBER OF DAYS ABSENT	SIGMAS (DAYS)
13, 12, 11, 10, 9, 8, 7, 6.....	33	6.68	7.02
5.....	27	5.76	7.98
4.....	23	7.76	8.64
3.....	134	10.40	9.90
2.....	61	12.86	10.18
1.....	29	11.60	9.94
2 and 1.....	90	12.46	10.12

TABLE IXB

APPLICATION OF METHOD OF THE CRITICAL RATIO TO SHOW THE RELATION BETWEEN THE ATTENDANCE RECORDS OF GROUPS IN TABLE IXA\*

	Critical Ratio
Group 13, 12, 11, 10, 9, 8, 7, 6, or 5 with 4.....	1.42 or less
Group 13, 12, 11, 10, 9, 8, 7, 6, or 5 with 3.....	3.00 or greater
Group 4 with 3.....	1.97
Group 4 with 2.....	3.45
Group 4 with 1.....	2.23
Group 4 with 2 and 1.....	3.35

\* Group 3 includes children of parents with incomes between \$2,000 and \$2,500 a year.

in the city of this study need not feel under the necessity of constructing small junior high school buildings within a short distance of the homes of pupils. It is evident that the location of a building a mile or more distant from the homes of children will not be the direct cause of poor attendance. Other reasons might be presented for the construction of many small buildings near the homes of children, but the question of good attendance would not be one of them.

Inspection of Table II shows that the economic status and the environment of pupils have negative relations of  $-.19$  and  $-.13$ , respectively, with distance from school. It is quite obvious that the school marks, the school progress, the accomplishment ability, and the school attendance of pupils and the distance at which they live from school are not the causes of the standards of economic status and home environment of the pupils. The natural conclusion, therefore, is that the greater the income of the parents and the better the environment, the farther one lives away from the junior high school. This coincides with the observation of the author familiar with the home conditions of the part of the city where the school is located.

Applying partial correlations, the relation between economic status and attendance is found to be  $+.11$  positive although low. This positive relationship between economic conditions and school attendance is suggestive of Holley's conclusions. He discovered that:

....there is a close relationship between the advantages of a home, its educational, economic, and social status, and the number of years of schooling which its children receive, and, if a person wished to forecast from a small objective measure the probable educational opportunity which the children of a home have, the best measure would be the number of books in the home.<sup>1</sup>

Evidently parents with good incomes living in a good environment are likely to urge their children to attend school regularly.

#### SUMMARY

All the figures presented in this chapter deal only with the results of a study of 307 pupils in the 7B grade of one junior high school in a specific city. Similar results might be obtained in other communities only under conditions similar to those in that

<sup>1</sup> Holley, E. C. *Fourteenth Year Book*, pp. 96-100. National Society for the Study of Education, 1914.

city and school system. Even if conditions differ widely, however, the results should be valuable for purposes of comparison.

1. All the statistics in regard to school attendance of pupils in Grade 7B show a low, positive correlation between school attendance and other elements entering into the lives of these pupils, both before and after partial correlation has been applied to the figures, except in regard to distance and environment. The highest figure after obtaining partial correlations is +.27 between attendance and school progress. There is no positive relation between absence and distance of homes of pupils from the school.

2. When the measure of the critical ratio is employed with the same statistics which figure in the correlations, however, there is discovered a significant ratio between school attendance and school marks, school progress, environment of pupils, and economic status of parents of pupils. The term "significant ratio" is interpreted as 3 or greater.

3. No significant relation is discovered between school attendance and ability.

4. Although there is a strong suggestion of a genuine relation between the school attendance of pupils and the home-room teachers under whose supervision they come for a considerable period of time each week, no scientific method for proving such a relation was employed.

5. The school marks of pupils before they entered junior high and their marks in junior high had a fair positive relation. The school attendance of these pupils before they entered junior high and their attendance in junior high possessed a high positive correlation.

6. The critical ratio is employed in the interpretation of coefficients of correlation in this chapter.

## CHAPTER V

### RELATION OF SCHOOL ATTENDANCE TO MARKS IN SPECIFIC SCHOOL SUBJECTS; TO SEX; TO PLACE OF BIRTH OF PARENTS

In Chapter IV, the relation between attendance and the average of the school marks of pupils and school progress of pupils has been shown to be significant. In this chapter, the relation between attendance and school marks in individual subjects will be considered. The importance of sex and nationality in affecting school attendance and, consequently, school marks will also be discussed in the light of the data presented.

#### SCHOOL ATTENDANCE AND MARKS IN SPECIFIC SUBJECTS

Tables X and XI show the relation between school attendance and the different subjects taken by the pupils before and after the method of partial correlation had been applied to the figures. Before partial correlation had been employed, only history showed a relation higher than that between the average marks of school

TABLE X

CORRELATION OF EIGHT DIFFERENT SUBJECTS TAUGHT IN THE 7B GRADE OF THE JUNIOR HIGH SCHOOL WITH SCHOOL ATTENDANCE, SCHOOL PROGRESS, ABILITY, ENVIRONMENT, ECONOMIC STATUS, AND DISTANCE OF HOMES OF PUPILS FROM SCHOOL

SUBJECT	ATTEND- ANCE	SCHOOL PROG- RESS	ABILITY	EN- VIRO- NMENT	ECON- OMIC STATUS	DIS- TANCE
Drawing.....	.18	.10	.20	.29	.13	-.03
English.....	.30	.30	.49	.28	.15	.08
Geography.....	.05	.15	.21	.37	.15	-.11
History.....	.44	.21	.25	.21	.19	.06
Literature.....	.15	.33	.16	.35	.23	-.02
Music.....	.15	.24	.29	.31	.12	-.08
Practical Arts.....	.03	.06	.29	.29	.22	-.11
Mathematics.....	.30	.07	.12	.13	.07	-.15

subjects. The crude correlation for English and mathematics approximates that between the average mark and attendance. After applying partial correlation, history shows a relationship .14 higher and mathematics .05 higher than the relation between the average mark of all studies and attendance. Practical English is .09

TABLE XI

## PARTIAL CORRELATIONS OF SCHOOL ATTENDANCE WITH SPECIFIC SUBJECTS

	<i>r</i>
Attendance and Drawing with All the Other Elements Constant with Exception of Other School Subjects.....	+ .11
Attendance and English with All the Other Elements Constant with Exception of Other School Subjects.....	+ .14
Attendance and Geography with All the Other Elements Constant with Exception of Other School Subjects.....	- .09
Attendance and History with All the Other Elements Constant with Exception of Other School Subjects.....	+ .37
Attendance and Literature with All the Other Elements Constant with Exception of Other School Subjects.....	- .02
Attendance and Mathematics with All the Other Elements Constant with Exception of Other School Subjects.....	+ .28
Attendance and Music with All the Other Elements Constant with Exception of Other School Subjects.....	0.00
Attendance and Practical Arts with All the Other Elements Constant with Exception of Other School Subjects.....	- .09

lower, drawing is .12 lower, the correlation for music is 0; geography, literature, and practical arts show negative correlations!

These figures are difficult to analyze. Does attendance affect mathematics more because the personal assistance of a teacher is necessary to enable a child to progress well in that subject, and because even one day of absence means the loss of valuable, often essential instruction? Such would be the opinion of some people. The low correlation between marks in mathematics and ability in Table X would suggest that marks received in mathematics are not affected to a very great degree by the type of ability measured by the Illinois tests. History, on the other hand, is popularly considered a subject which can be studied by oneself if

the individual understands English. Yet the partial correlation between that subject and attendance is .37, in contradiction of that conception.

The negative correlation in geography is equally difficult to explain. Any effort to find an answer to this relation is mere surmise with no basis for the correct solution. Table XV, which contains the means for the school marks in all subjects, shows

TABLE XIIA  
MEANS FOR ALL RELATIONS OF PUPILS STUDIED—BY SEXES

SPECIFIC SCHOOL SUBJECTS AND OTHER ELEMENTS	MEANS		SIGMAS	
	BOYS 155	GIRLS 152	BOYS	GIRLS
School Progress.....	4.88	5.84	2.24	1.85
School Marks.....	3.22	4.18	.67	.76
Environment.....	3.33	3.74	2.30	2.70
Ability.....	4.60	4.62	2.66	2.52
Economic Status.....	2.81	2.96	1.85	2.04
Distance.....	7.33	6.90	2.59	3.01
Absence.....	10.72 days	8.70 days	10.26	8.56
English.....	3.61	4.26	1.05	.94
Drawing.....	4.14	4.08	1.78	.90
Geography.....	3.60	3.04	1.16	1.23
History.....	3.85	3.74	1.23	1.30
Literature.....	3.86	4.32	.96	.95
Mathematics.....	3.60	3.93	1.04	1.48
Music.....	4.13	4.29	.68	.84
Practical Arts.....	4.15	4.32	.93	.56

that the mean mark in geography was 3.32 on a scale of 10, while the mean mark for all subjects was 3.93. In both geography and history, teachers were advised to assign no home work in the seventh grade. One would naturally, therefore, expect the carrying out of this direction to affect similarly the relations between attendance and history and geography. There is a possibility that one or more of the new teachers of the group studied, on account of their inexperience, may have been responsible not only for the low marks in geography but also for this seeming inconsistency between attendance and the mark in geography.

## COMPARISON OF RECORDS OF SEXES

Table XII shows that the school marks and the school progress of the girls are noticeably better than the same data for the boys. The attendance is also better for the girls than for the boys. The fact that the factors of environment, the economic status, and the ability of the sexes do not differ by higher critical ratios suggests that the relations between attendance and school marks

TABLE XII B

## CRITICAL RATIOS BETWEEN RECORDS OF BOYS AND GIRLS IN SPECIFIC SCHOOL SUBJECTS AND IN OTHER ELEMENTS

SPECIFIC SCHOOL SUBJECTS AND OTHER ELEMENTS	Critical Ratios	SEX RANKING HIGHER
School Progress.....	6.23	Girls
School Marks.....	17.70	Girls
Environment.....	2.16	Girls
Ability.....	.10	Girls
Economic Status.....	1.07	Girls
Distance.....	2.00	Boys
Attendance.....	2.81	Girls
English.....	8.55	Girls
Drawing.....	.55	Boys
Geography.....	6.08	Boys
History.....	1.10	Boys
Literature.....	6.30	Girls
Mathematics.....	3.37	Girls
Music.....	2.76	Girls
Practical Arts.....	2.93	Girls

and school progress are important. It may very well be, however, that the girls attend school better because they are more conscientious and that their superiority in school marks is due not so much to their better attendance as to the fact that they are also more conscientious in their application to their studies. The fact that of all the subjects, the boys excelled the girls by a high critical ratio in geography alone raises the question as to whether the negative correlation between geography and attendance may be due to the inability of the girls to grasp that subject as well as the boys, regardless of the better attendance of the girls.

## RECORDS OF CHILDREN OF FOREIGN-BORN PARENTS

Table XIII reveals, probably, the most important and also the most lamentable facts discovered in this study and those facts which need most consideration. This table shows the relation existing between the children of American-born parents and the children of fathers born in foreign countries. In every element noted except school marks and distance from school, there is a critical ratio sufficiently high to prove a genuine difference between the two groups.

TABLE XIII A

MEANS FOR ALL RELATIONS OF THE PUPILS STUDIED BY NATIONALITY  
WHETHER CHILDREN OF AMERICAN-BORN PARENTS OR  
FOREIGN-BORN PARENTS

ELEMENT	MEANS		SIGMAS	
	Pupils with Foreign-Born Parents	Pupils with American-Born Parents	Pupils with Foreign-Born Parents	Pupils with American-Born Parents
Cases.....	166	141		
Absence.....	10.76	8.34	10.12	9.24
Distance.....	7.27	6.79	2.80	2.82
Economic Status...	2.49	3.34	1.41	2.33
Environment.....	2.52	4.62	1.93	2.80
Marks.....	3.37	3.50	.71	.63
Ability .....	4.11	5.05	2.52	2.49
School Progress.....	4.50	7.29	1.41	2.04

TABLE XIII B

CRITICAL RATIOS BETWEEN THE TWO GROUPS—ALL RESULTS ARE IN FAVOR OF CHILDREN WITH AMERICAN-BORN PARENTS EXCEPT FOR DISTANCE

ELEMENT	Critical Ratios
Attendance.....	3.35
Distance.....	2.24
Economic Status.....	5.66
Environment.....	11.35
Marks.....	2.32
Ability .....	4.75
School Progress.....	20.51

The apparent difference in the ability of the children indicates, probably, only a difference in the power of children from homes of foreign-born parents to comprehend readily the printed page in English. The Illinois tests used were largely based upon the ability to understand clearly and quickly the English language which in many of the homes of the pupils is not the language of the parents. The low critical ratio between the average school marks of the pupils of foreign parents and those of the pupils from American homes shows no conspicuous difference in actual classroom work on account of nationality. This average mark included marks in music, practical arts, drawing, and mathematics in which a knowledge of English would not be relatively so important as in other subjects. Perhaps, also, the experienced teacher especially would make considerable allowance for the use of English by a pupil of foreign parents in reciting in geography and history provided he exhibited a grasp of the facts desired. She might even take special pains to present the work clearly and simply to such pupils.

The difference in the school progress of the children of foreign-born parents compared with that of the other group is the most noticeable of all the relationships shown in Table XIII. It emphasizes the necessity of giving special attention to such children in the lower grades of the school, so that they may not be handicapped in life by being gradually left farther and farther behind their fellow students until, discouraged, they finally drop out of school. The difference in economic status and environment is one that only a longer period of residence on the part of the parents in this country, and progressive city improvement on the part of municipal authorities, can remedy. Naturally, with these differences, the difference in school attendance is also expected to be high. The critical ratio is 3.35.

In all these tables, one relation always stands out prominently even though others may vary from time to time. This is the relation between school progress and school attendance. In the preceding chapter, this correlation in the 7B grade was found to be larger than that of any other factor with attendance. To indicate that this correlation would probably exist also in lower grades, data were presented to show that the attendance and school marks of pupils in the 7B grade were closely related to

the attendance and school marks of these same pupils in the eight preceding semesters.

From the data here presented, it is shown that children of foreign-born parents have poorer attendance records than children from American homes, and at the same time the difference in their school progress according to the critical ratio is 20.51, an unusually high ratio. The critical ratio between the attendance of girls and boys, moreover, is 2.81 days in favor of the girls; the difference in their school progress by the same measure is 6.23! All these facts form cumulative evidence of a causal relation between these two factors. Although they undoubtedly interact, the author agrees with Reavis, who, in his thesis already frequently referred to, gives the greater weight to the influence of school progress on the attendance when he says that the age-grade relation must be the cause of poor attendance so far as a causal relation exists between these two elements.

#### ATTENDANCE OF PUPILS WHO LEAVE SCHOOL

In order to find some suggestions in regard to the attendance of those pupils who left school to go to work either in the 7B grade or within six months after finishing that grade, the attendance averages of the thirty-nine such pupils for the eight semesters preceding their membership in the 7B grade were computed.

These figures show a significant critical ratio of 3.19 between the attendance records of those pupils who drop out of school during the 7B grade, or within a few months after their completion of that grade, and those who remain in school. Poor attendance, in itself, cannot be said to be a cause for leaving school, but it evidently is an indication in the majority of cases that the child will be one of those who will not remain very long under the influence of public education. It has already been noted that delayed progress is a direct cause of poor attendance. The cycle, therefore, is somewhat like this: Age-delay—poor attendance—elimination from school.

#### REGULARITY OF ATTENDANCE

Table XIV shows the relation of school marks to regularity of attendance as well as to days absent. Unfortunately, the records

TABLE XIV

## REGULARITY OF ATTENDANCE OF PUPILS VERSUS SCHOOL MARKS ATTAINED

	SCHOOL MARKS*				
	A	B	C	D	E
Number of Pupils Attaining Marks of Different Grades.....	3	60	146	35	7
Number of 1-day Absences.....	96	293	184	37	
Percentage of 1-day Absences Compared with Number of Pupils.....	1.60	2.01	3.35	5.28	
Number of 2-day Consecutive Absences.....	21	71	75	10	
Percentage of 2-day Consecutive Absences Compared with Number of Pupils.....	.35	.49	1.36	1.43	
Number of 3-day Consecutive Absences.....	10	27	25	0	
Percentage of 3-day Consecutive Absences, Compared with Number of Pupils.....	.17	.18	.45	0	
Number of 4-day Consecutive Absences.....	3	10	10	0	
Percentage of 4-day Consecutive Absences, Compared with Number of Pupils.....	.05	.07	.18	0	
Number of 5-day Consecutive Absences.....	1	4	9	14	0
Percentage of 5-day Consecutive Absences, Compared with Number of Pupils.....	.33	.07	.06	.25	0
Number of 6-day Consecutive Absences.....	.2	5	1	0	1
Percentage of 6-day Consecutive Absences, Compared with Number of Pupils.....	.03	.03	.02	.14	0
Number of 7-day Consecutive Absences.....	2	2	3	0	
Percentage of 7-day Consecutive Absences, Compared with Number of Pupils.....	.03	.01	.05	0	
Number of 8-day Consecutive Absences.....	0	3	0	0	
Percentage of 8-day Consecutive Absences, Compared with Number of Pupils.....	0	0	0	0	
Number of 9-day Consecutive Absences.....	0	2	2	0	
Percentage of 9-day Consecutive Absences, Compared with Number of Pupils.....	0	.01	.04	0	
Number of 10-day Consecutive Absences.....	0	2	0	1	
Percentage of 10-day Consecutive Absences, Compared with Number of Pupils.....	0	.01	0	.14	
More than 10 Days Consecutive Absences.....			5	2	0
Percentage of More Than 10 Days Consecutive Absences Compared with Number of Pupils.....			.03	.04	0

\*A—Pupils of greatly superior ability; B—Pupils of superior ability; C—Pupils of average ability; D—Pupils below average ability; E—Pupils greatly below average ability.

for one group, the lowest in ability, could not be obtained as the attendance book had been mislaid. As several of the failures among the students occurred in that group, this table has not been computed to include the attendance of those who failed.

The heading "School Marks" includes the average mark that was attained by certain pupils. Below this is given the number of pupils who attained each given mark.

This table shows the total number of times pupils making different marks were absent 1 day at a time, 2 days at a time, etc., up to 10 days and 10 days or more. Under each number of days absent, the average number of 1-day absences, 2-day absences, etc., per number of pupils in that group have been computed.

The first fact that strikes the attention in looking at this table is that the great majority of absences of pupils occur either one or two days at a time. Of all the absences recorded in this

TABLE XV  
MEANS AND SIGMAS FOR ALL RELATIONS OF PUPILS STUDIED

ELEMENT	CASES	MEANS	SIGMAS
Absence.....	307	9.66	9.74
Environment.....	307	3.49	2.58
Distance.....	307	6.96	2.84
Ability.....	307	4.54	2.58
School Marks.....	307	3.93	.76
Delayed Progress.....	307	3.55	2.11
Economic Status.....	307	2.88	1.94

SCHOOL MARKS

ELEMENT	CASES	MEANS	SIGMAS
Drawing.....	307	4.11	.84
English.....	307	3.84	1.05
Geography.....	307	3.32	1.22
History.....	307	3.79	1.28
Mathematics.....	307	3.77	1.47
Literature.....	307	4.12	.99
Music.....	307	4.21	.75
Practical Arts.....	307	4.23	.77

table, 610 were for 1 day; 177 for 2 days each; 62 for 3 days each; 23 for 4 days each; 27 for 5 days each; 9 for 6 days each; 7 for 7 days each; 3 for 8 days each; 4 for 9 days each; 3 for 10 days each; and only 7 for more than 10 days each. This may assist us in understanding the low, although positive correlation between school attendance and school marks, as teachers often refer to a lesson of a preceding day in such a manner that many pupils are able to grasp much of the work that has been taught the one or two days that they have been absent.

The next fact which stands out conspicuously substantiates, however, the existence of a close relation between attendance and school marks. This is the noticeable increase in the percentage number of two-day and three-day or more absences, as one looks down the school marks decreasing from A to E. This indicates that school attendance bears an increasing relation to school marks as the amount of absence increases beyond one or two consecutive days. This agrees substantially with the opinion of Strayer and Thorndike already quoted.

Table XV gives the means and sigmas for all the elements studied in Chapters IV and V.

#### SUMMARY

In this chapter, the statistics presented deal with the records of the same group of 7B pupils as furnished the figures for the preceding chapter. Consequently, only under similar conditions in other communities might one expect to discover exactly the same results as have been presented.

1. There are positive relations between attendance and drawing, English, history, and mathematics. Negative relations exist between attendance and geography and practical arts. There are no positive relations between attendance and literature or music.

2. Girls in the 7B grade attended school better than boys. They obtained better school marks on the average and had progressed further in school. They excelled the boys in English, literature, and mathematics; the boys excelled the girls in geography.

3. Children from the homes of foreign-born parents were conspicuously poorer than children from homes of American-born parents in attendance, economic status, environment, accomplish-

ment ability, and school progress. The difference in school marks was slight.

4. Pupils who left school while in the 7B grade or soon after the completion of that grade made lower records in attendance in the grades preceding the 7B grade than those pupils who remained longer in school.

5. Pupils with high school marks showed a noticeably higher regularity in attendance than those pupils who received lower marks.

6. The cumulative effect of all data thus far studied is to emphasize the close relationship between school progress and school attendance. An additional fact that is noticeable is the positive relationship between school marks and school attendance.

## CHAPTER VI

### AN EXTENSION OF THE STUDY ALREADY PRESENTED

In Chapters III and IV, the relation of school attendance to school marks and to school progress stands out as significant. The superiority of girls and the higher standards of children of American-born parents in these characteristics appear also as conspicuous.

That the attendance-school-marks relation for the 7B pupils was also probably true for these same pupils in preceding grades is indicated by two facts. The first is the high relation between the attendance record of these pupils during the 7B grade and the average of their attendance records during the preceding eight semesters. The second is a similar high relation between their school marks during the 7B grade and the average of their school marks during the same preceding eight semesters.

A further substantiation of the conspicuousness of this relation is, nevertheless, desirable. The purpose of extending the original study is, if possible, to present this substantiation. A second purpose is to discover to what extent normal school progress depends upon entrance to school at the minimum legal age—six years. Do pupils who enter later than that age catch up with younger pupils as some educators believe, or do they always remain behind their more favored brothers and sisters, and increase in undue numbers the army of those who are early eliminated from the public schools? Does it become necessary, therefore, to qualify the statement previously made that attendance and school progress are closely related by adding that age-delay, aided greatly by late entrance to school, has probably a much greater effect on school attendance than school attendance has on school progress?

Finally, by comparing the school attendance of pupils in the same grade at an interval of four years, does there appear a clear indication that school attendance in this Pennsylvania city is noticeably improving?

## OBTAINING OF DATA

In order to obtain data for answering these questions, a study was made of certain pupils in the same city in which the study of junior high school pupils was made. In this city a complete record system has been in use for over ten years, so that adequate records were available for this purpose.

A successful effort was made to create anew the 1B class which entered seven public schools in this city for the first time in September, 1916. Fortunately, the records of these pupils could

TABLE XVI

MEDIAN AND AVERAGE ABSENCES OF PUPILS IN GRADES 1B TO 8A BEFORE  
AND AFTER THE BEGINNING OF THE INTENSIVE CAMPAIGN IN 1920  
TO ENFORCE THE STATE ATTENDANCE LAWS OF PENNSYLVANIA

## TOTALS OF SEVEN SCHOOLS

A\*

B\*\*

C\*\*\*

GRADE	DAYS ABSENT		GRADE	DAYS ABSENT		GRADE	DIFFERENCE OF MEDIAN	DIFFERENCE OF AVERAGE		
	MEDIAN	AVERAGE		NUMBER OF CASES	MEDIAN	AVERAGE				
1B	18.31	22.8	534	1B	14.07	20.51	568	1B	+4.24	+2.29
1A	15.60	19.18	371	1A	12.58	15.81	458	1A	+3.02	+3.37
2B	11.18	14.86	369	2B	9.91	13.29	420	2B	+1.27	+1.57
2A	12.17	15.05	378	2A	7.93	11.40	354	2A	+4.24	+3.65
3B	9.12	11.56	343	3B	7.73	9.79	303	3B	+1.39	+1.77
3A	9.94	12.96	309	3A	7.63	9.49	238	3A	+2.31	+3.47
4B	8.17	11.67	328	4B	6.39	9.74	133	4B	+1.78	+1.93
4A	8.40	11.25	309	4A	9.44	13.24		4A		
5B	7.59	10.24	290	5B†	9.51	13.94	293	5B	+1.92	+3.70
5A	8.48	11.04	278	5A	10.38	16.26	292	5A	+1.90	+5.22
6B	8.29	10.62	267	6B	8.85	14.86	216	6B	+1.56	+4.24
6A	7.19	9.59	233	6A	8.86	13.22	202	6A	+1.67	+3.63
7B	6.44	8.20	197	7B	8.01	13.07	181	7B	+1.57	+4.87
7A	6.48	8.36	149	7A	9.19	14.30	158	7A	+2.71	+5.94
8B	5.61	6.41	32	8B	6.72	10.50	129	8B	+1.11	+4.09
8A	7.00	7.86	14	8A	6.81	9.95	109	8A	-1.19	+2.09

Note: All pupils are from the same schools.

\*Table A is a study of pupils who entered the 1B grade in 1916, and who, therefore, entered the 5B grade in 1920.

\*\*Table B up to the 5B grade is a study of pupils who entered the 1B grade in 1920. Table B beginning with the 5B grade is a study of pupils who entered the 5B Grade in 1916.

\*\*\*Table C gives differences of Medians and Averages of Tables A and B.

be obtained either in the active files or among the discards in the superintendent's office. The cards of pupils who had left school to go to work, as well as those who had moved to another city, were therefore located, and the attendance records of seven and one-half years were studied for 381 pupils, quite representative of the different nationalities in the city. The 5B group which entered these same schools in 1916, and the 1B group which entered in 1920, were then also studied as to their attendance records of three and one-half to four complete years.

The summaries of this study are given in Table XVI. (Plus signs in this table mean that the 1920 entrants were absent fewer days than the 1916 entrants; minus signs indicate that they were absent more days.)

The figures show an increase in the attendance of pupils of from 1.57 days to 5.94 days per semester in different grades since 1920. Although much of this increase is doubtless due to the improvement in school attendance over the entire country since 1916, many believe that some proportion of it can be attributed to the more strict operation of the Pennsylvania state law since 1920. There is in this study no proof for or against this belief.

#### EFFECT OF AGE OF ENTRANCE ON SCHOOL PROGRESS

In the minds of some people, the age of entrance of pupils to public schools does not affect the progress of pupils. According to these individuals, the greater maturity of boys and girls who enter after the age of six years enables them to advance more rapidly and to catch up with or pass those who enter earlier, if the school system provides the possibility for such advancement.

There is also a rather widespread opinion that a large number of those pupils who enter late are naturally of low intelligence or are pupils who come from homes where little interest is taken in school work. Such pupils, it is believed by some, would exhibit a similar amount of delayed progress at the end of a given period of years whether they entered at the age of six years or somewhat later. If this is true, these pupils would naturally be likely to leave school as soon as the law permitted them to do so.

In this study, there are no objective data to prove or disprove these opinions. The correlation of +.17 between ability and school progress in Table II would tend to substantiate this belief only

to the extent that the bases for obtaining the grouping by ability of the 307 pupils studied in Chapter IV possessed also the elements of an intelligence test.

Tables XVII, XVIII, XIX, and XX indicate that in the school system studied, during the dates mentioned, the age of entrance for pupils is noticeably related to the age-delay of these pupils after seven and one-half years of school life.

TABLE XVII

MEDIAN AND AVERAGE AGE OF ENTRANCE OF PUPILS ACCORDING TO GRADE ATTAINED AFTER SEVEN AND ONE-HALF YEARS IN SCHOOL

GRADE ATTAINED	MEDIAN AGE OF ENTRANCE	AVERAGE AGE OF ENTRANCE	NUMBER OF CASES
9B or higher.....	6.25	6.50	14
8A.....	6.20	6.27	69
8B.....	6.18	6.23	55 (on time)
7A.....	6.15	6.25	29
7B.....	6.50	6.32	31
6A.....	6.35	6.70	21
6B.....	6.50	6.44	9
5A.....	6.00	6.00	3
5B.....	6.75	7.00	2
4A.....	6.50	6.66	3
4B.....	6.25	6.25	2
Left School.....	6.70	7.00	114
Left City.....	....	....	29
Total.....	....	....	381

The average age of entrance of those who left school before spending seven and one-half years in school was seven years for 114 pupils. The average age of entrance for those who remained in school for seven and one-half years was 6.33 years for 238 pupils. No data were obtainable which would reveal the principal causes for leaving school in the case of pupils who entered at a late age. One reason frequently suggested is that pupils lose interest when they are in classes with pupils younger than themselves.

What progress was made in this school system by pupils entering the 1B grade at different ages is shown most clearly in Tables

XVIII and XIX. In computing these tables, the age of six was considered as the normal age for entrance. The figures employed were the figures from the records of children who were in

TABLE XVIII

CORRELATION OF AGE OF ENTRANCE AND AGE-DELAY OF 257 PUPILS AFTER SEVEN AND ONE-HALF YEARS IN SCHOOL, EXCLUDING THOSE PUPILS WHO LEFT CITY OR WENT TO PAROCHIAL SCHOOLS

SCHOOL	CORRELATION
1.....	+.64
2.....	+.11
3.....	+.62
4.....	+.85
5.....	+.87
6.....	+.77
7.....	+.40
All Schools.....	+.68
Cases considered.....	257

TABLE XIX

MEDIANS OF AGE-DELAY OF PUPILS ENTERING SCHOOL AT DIFFERENT AGES, AFTER SEVEN AND ONE-HALF YEARS IN SCHOOL, NOT INCLUDING THOSE WHO LEFT CITY OR WHO WENT TO PAROCHIAL SCHOOL

AGES	MEDIANS
4½.....	Normal
5.....	Normal
5½.....	.79—
6.....	1.69—
6½.....	2.47—
7.....	4.33—
7½.....	4.62—
8.....	5.83—
8½.....	6.25—
9.....	10.33
10.....	13.
12½.....	13.
Cases considered.....	257

school at the end of seven and one-half years, or whose records were complete up to the time that they went to work. The correlation of .68 between the age of entrance and the age-delay of pupils in Table XVIII is very significant as indicating that pupils who entered late did not make up the handicap of entering a half-year or more behind their more fortunate comrades. In considering these figures, it is necessary to remember that in this school system at the time of this study no systematic effort was being made to advance rapidly pupils who were capable of progressing more than one-half grade during a semester.

Table XIX presents the median amount of age-delay for each age-entrance group. It shows that the least amount of age-delay is recorded for those who entered at six years of age or younger. The figures for those who entered at nine or over are valueless on account of the few cases considered. The increase in the amount of age-delay of pupils shows a noticeable progress as the age of entrance of pupils increases.

Table XX is similar to Table XIX except that all of the 381 cases studied are considered in these statistics. The same characteristics are conspicuous in both tables.

TABLE XX

MEDIAN OF AGE-DELAY OF ALL (381) PUPILS ENTERING GRADE 1B AT  
END OF SEVEN AND ONE-HALF YEARS

AGES	MEDIANS
5½.....	.79
6.....	1.59
6½.....	2.2
7.....	3.78
7½.....	4.21
8.....	5.25
8½.....	6.5
9.....	6.8
9½.....	7.00
10.....	13.00
10½.....	13.00
Cases considered.....	381

*Note:* When pupils left school or the city, the age-delay at the time of leaving the school was taken as a basis for the figures in this table.

## ATTENDANCE AND SCHOOL MARKS

From the records of these same pupils some additional light is thrown on the data of Chapter IV. Table XXI shows the correlation between school attendance and school marks for fourteen

TABLE XXI

## CORRELATION OF ATTENDANCE AND SCHOOL MARKS IN DIFFERENT GRADES

PUPILS LARGELY OF GERMAN DESCENT SCHOOL 1		PUPILS LARGELY OF IRISH DESCENT SCHOOL 2		PUPILS LARGELY OF SLAVISH DESCENT SCHOOL 3	
Grade	Correlation	Grade	Correlation	Grade	Correlation
1B	+.26	1B	+.10	1B	+.22
1A	+.81	1A	+.23	1A	+.27
2B	+.014	2B	+.27	2B	+.35
2A	+.13	2A	+.0006	2A	+.16
3B	+.21	3B	+.23	3B	+.17
3A	+.23	3A	+.23	3A	+.07
4B	+.12	4B	+.28	4B	+.06
4A	+.02	4A	+.35	4A	+.03
5B	+.14	5B	+.35	5B	+.34
5A	+.125	5A	+.64	5A	+.14
6B	+.58	6B	+.35	6B	+.28
6A	+.02	6A	+.35	6A	+.30
7B	+.28	7B	+.61	7B	+.50
7A	+.18	7A	+.16	7A	+.25
PUPILS LARGELY OF WELSH DESCENT SCHOOL 4		PUPILS LARGELY OF AMERICAN DESCENT SCHOOL 5		PUPILS LARGELY OF ITALIAN DESCENT SCHOOL 6	
Grade	Correlation	Grade	Correlation	Grade	Correlation
1B	+.31	1B	+.31	1B	+.31
1A	+.15	1A	+.43	1A	+.20
2B	+.30	2B	+.15	2B	+.60
2A	+.24	2A	+.34	2A	+.38
3B	+.26	3B	-.11	3B	+.45
3A	+.04	3A	+.33	3A	+.29
4B	+.006	4B	+.02	4B	+.01
4A	+.15	4A	+.20	4A	+.36
5B	+.06	5B	+.04	5B	+.20
5A	+.14	5A	+.08	5A	+.48
6B	+.31	6B	+.37	6B	+.16
6A	+.34	6A	+.30	6A	-.20
7B	+.17	7B	+.26	7B	+.26
7A	+.11	7A	+.04	7A	+.38

TABLE XXI (*Continued*)

PUPILS LARGELY OF JEWISH DESCENT SCHOOL 7		TOTALS		NUMBER OF CASES
Grade	Correlation	Grade	Correlation	
1B	+.40	1B	+.24	556
1A	+.33	1A	+.25	331
2B	+.31	2B	+.22	346
2A	-.098	2A	+.18	380
3B	+.23	3B	+.17	330
3A	+.11	3A	+.08	330
4B	+.24	4B	+.07	318
4A	+.31	4A	+.16	307
5B	+.44	5B	+.21	291
5A	+.21	5A	+.19	276
6B	-.03	6B	+.25	253
6A	+.42	6A	+.21	220
7B	+.40	7B	+.26	181
7A	+.45	7A	+.18	146

grades as observed in seven schools in each of which a different nationality predominated and also the combined totals for these seven schools. The correlations of the records of all the schools are from .09 to .26 points lower than the correlation of .34 noted in the study of the 7B junior high school grade. Between the two 7B groups studied, the difference is .08. Partial correlation could not be applied to the second group of figures as the necessary data were lacking. The inference from a comparison of the two groups is that in schools other than the junior high school there is a positive relation between school marks and school attendance but not so great a relation as in the 7B grade of the junior high school.

Table XXII shows the average attendance in different grades of those pupils who entered school in September, 1916, but who left school before reaching the 8B grade. These figures indicate that in every grade except 6B, 6A, and 3B such pupils attended school more poorly than their fellow pupils who continued their school life as far as the 8B grade. The seeming difference in attendance in 6B and 6A may be due to the smaller number of pupils studied in those grades.

TABLE XXII

MEDIAN AND AVERAGE ABSENCES OF THOSE WHO ENTERED 1B IN 1916 AND  
 WHO LEFT SCHOOL BEFORE REACHING THE 8B GRADE COMPARED  
 WITH ABSENCES OF 381 PUPILS AMONG WHOM THESE  
 PUPILS WERE INCLUDED

SCHOOL GRADE	CASES	MEDIAN FOR SEVEN SCHOOLS	AVERAGES FOR SEVEN SCHOOLS	AVERAGES FOR ALL STUDENTS
1B.....	199	21.36	25.25	22.8
1A.....	106	17.11	21.89	19.18
2B.....	93	12.42	18.55	14.86
2A.....	73	14.375	18.56	15.05
3B.....	70	8.75	11.29	11.56
3A.....	59	13.42	17.03	12.96
4B.....	43	8.96	15.70	11.67
4A.....	39	13.00	17.82	11.25
5B.....	24	9.23	11.25	10.24
5A.....	22	12.86	16.82	11.04
6B.....	15	7.50	9.00	10.62
6A.....	11	6.11	8.64	9.59
7B.....	8	10.00	10.00	8.20
7A.....	2	20.00	20.00	8.36

## SUMMARY

1. The statistics presented in this chapter are from the same city as those in Chapters III and IV. They are derived from a study of 381 pupils distributed among seven different schools in each of which individuals of certain specific nationalities predominated. None of the records overlap the records of the pupils studied in the previous chapters.

2. The correlations between school attendance and school marks obtained in this extension of the original study are also positive, but smaller than those previously obtained by from .09 to .26, depending upon the grades compared. The figure for the 7B grade is .26, .08 smaller than the relation for the 7B grade previously studied.

3. The pupils studied who entered this school system later than the age of six years did not catch up with pupils who entered at the normal age of six. They usually exhibited a conspicuous age-delay at the end of seven and one-half years or left school to go to work before the end of the period of years.

There were no data obtainable to indicate whether those who entered late were of such intelligence that, even if they had entered on time, they would have progressed so slowly that their age-delay would probably have reached the same amount at the end of seven and one-half years as indicated in this study. There was, moreover, in the school system, no systematic method for advancing more rapidly than the average children those pupils who were capable of profiting by such advancement.

4. Pupils who went to work before reaching the 7B grade showed in almost all school grades a greater amount of absence than those who reached the 8B grade. These figures substantiate figures already presented in Chapter IV.

5. Since the strict enforcement of the Pennsylvania attendance laws begun in 1920, there has resulted an improvement in the attendance of pupils. There is no proof presented in this chapter for or against the belief of the State Department of Education in Pennsylvania that this improvement is due to some extent to this strict enforcement.

## CHAPTER VII

### CONCLUSIONS AND RECOMMENDATIONS

The study presented in the preceding chapters deals with one city only. This city, however, is a typical industrial city of the eastern United States with the usual variety of social strata and with a large adult population of individuals born in foreign countries.

The data were gathered from two different groups of pupils in this city. One group was a 7B class of 307 pupils in a junior high school in this city. The other group was composed of 381 pupils who, in September, 1916, composed the entire 1B grades of seven schools in which individuals of seven different nationalities predominated.

There is no certainty that in other cities throughout the country identical figures would be obtained from studies similar to this one. In case such studies were made, however, it is believed that these statistics should prove of value for purposes of comparison and contrast.

With these qualifications, therefore, the following conclusions and recommendations are presented:

1. There is a noticeable positive relation between school attendance and school marks and school progress. There is also between certain groups a significant relation between attendance and home environment as well as the economic status of parents of pupils. Girls attend school better than boys, are further advanced for their ages, and obtain better school marks. Pupils from the homes of foreign-born parents attend more poorly, have not progressed as far in school as other pupils, come from homes in poorer environments, and have fathers who receive a lower income than those children whose fathers were born in America. The school marks of such pupils are, however, not significantly different from those of other pupils.

It seems probable, therefore, that the school attendance—school marks, and the school attendance—school progress relations are not simple relations which can be interpreted as direct causes and

effects. A poor school attendance, however, is a danger signal of a condition to be investigated. Occasionally, it may prove to be a legitimate case of necessary absence. Poor attendance will, however, probably prove to be an unfortunate combination of two or more factors such as age-delay, a poor physical environment at home, a low income on the part of parents, and a home of parents of foreign birth who are not insisting upon the necessity of their children attending school regularly.

2. The relation between the school attendance of pupils and the distance at which they live from school is negative.

3. There has been a noticeable improvement in the attendance of pupils since the effort on the part of the Pennsylvania Department of Instruction in 1920 to enforce strictly the state attendance laws. This study does not attempt to prove that the increase in attendance is due to this effort.

4. Most pupils who entered this school system later than at six years of age were either delayed in their progress through the grades or left school to go to work before reaching, or soon after reaching, the 7B grades. They anticipated their leaving by an amount of absence in grades below the 7B grade greater than the absence of those who remained longer in school.

The importance of school marks and normal school progress may be minimized by some parents. Even if these parents are right in their attitudes, however, most people consider the forming of habits of conscientious punctuality and conscientious regularity of attendance desirable in the entire life of an individual in whatever he or she undertakes. With the increasing attention that is being given to individual progress and individual instruction in our schools, with the conception of genuine mastery and complete adaptation as aims in modern education rather than mere completion of courses and covering of so many pages, regular school attendance ought to be expected to assume an increasing importance in the quality of school work and the rapidity with which school progress takes place.

#### RECOMMENDATIONS

1. School boards and school men should continue their present efforts to improve the attendance in our public schools, if only because of the noticeable relation which attendance has to school marks and school progress.

2. The location of junior high schools in this city or in similar cities without any unusual topographical difficulties may be as far distant as three miles from the homes of pupils. The effect of such distance on attendance need not enter into the decision concerning the location of buildings.

3. School principals and school superintendents are advised to inform themselves of the relation between school attendance and marks in specific school subjects in their schools. The absence of any significant difference in the marks of children absent for different periods of time should immediately cause them to question the organization of the courses in such subjects and the desirability of their methods of grouping. They might also investigate the efficiency of the instruction being provided by individual instructors in making each class period so essential that pupils cannot afford to lose even one day without experiencing a genuine loss.

4. In conclusion the author wishes to remind school people of certain suggestions in regard to the handling of the attendance problems with which they are already quite familiar. Early indications of delinquency in all grades should be studied carefully and promptly by truant officers, visiting teachers, and other school authorities. Parental schools or special schools with strong, sympathetic, well-equipped individuals in charge of the different grades should be established to take care of pupils who cannot be handled in the regular school organization. The assistance of the big brother and the big sister movements and kindred agencies is essential in preventing the development of habitual truancy. Boy scout and girl scout troops, parent-teacher associations, mothers' clubs, father and son organizations, better school attendance campaigns—all legitimate schemes should be employed to advance school attendance to as high a standard as possible. Competent school nurses should, however, assist in advising overconscientious students to remain at home, perhaps under the care of a physician, when the maintenance of their health requires such action.

Finally, school people, city authorities and social workers should coöperate to improve as far as possible such environments as are detrimental to the forming of habits of good attendance and other desirable habits on the part of boys and girls. This, the most difficult of tasks, is also the most worthwhile. Fortunately, it is an undertaking upon which all the selfishly disposed, as well as

those socially minded, can unite with a conviction that the results will well repay all efforts expended by the improvement that will result in the financial, the intellectual, and the spiritual well-being of a community.













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